# The Iron A

### A Review of the Hardware and Metal Trades.

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### The Centennial Medal of Award.

the Centennial Bronze Medal awarded to exhib-valve chest contain the valve gear complete the winner. The vase is a marvel of workman-Dealers' Association will reap a rich harvest. The figure on the obverse side is somewhat conventional, and has done duty on medals of award for many years. The designs stuffing box only would be needed. The main will exhibit it in their show-window during the grouped about it suggest the arts and indus- valve, common D pattern, is steam driven by remainder of the week, that all may have an five seconds allowed to each piece of baggage, tries, and the device on the shield is copied means of pistons upon each end; to these from the great seal of the United States. The steam is admitted through poppet valves, whose figures in the four medallions which break the stems project into the steam cylinder and are inscribed: bordering of stars, typify the four continents, raised as the beveled edge of the piston of the America, Europe, Asia and Africa. The reverse steam cylinder passes over them. This motion bears the inscription "Awarded by United takes place very quickly, even when the piston States Centennial Commission," inclosed in a is moving slowly, and consequently there are wreath of laurel. The words "International no "centers" nor dead points, and the engine Exhibition. Philadelphia, MDCCCLXXVI," can run at a very slow rate without stopping. trunk lids, hat boxes, etc., done in black between trucks.

complete the inscription. The medals have not yet been delivered to exhibitors.

It is to be regretted that, as a work of art, the Centennial Medal is commonplace. A medal of this character, which will be kept and valued for many years, and perhaps by succeeding generations, might well have shown the highest development of the die sinker's art at the time it was made. It cannot be said, however, that the Centennial Medal meets these conditions. As we have already said, the design is conventional, and represents nothing in particular. A female figure, which may be Peace, or Liberty, or Fame, or America, sits upon a brick pedestal, holding a wreath over nothing. The figures in the four small medaltions, though familiar, have a significance and are good, while the effect produced by them is excellent. We do not mean to imply that

the medal is a slovenly be said. The characters used in the inscripsanction of common employment in medal They are a combination of the old chest, which are conveniently placed for the checks, three out of every five mismatched.

and modern styles, and have the advantage of looking large and bold, even when crowded. The fact that the echinus molding has the Greek form on the obverse and the Roman on the reverse, will surprise those who examine it critically.

We think it highly improbable that the best of the designs presented were selected. It is more likely that the one chosen was preferred because it is conventional and commonplace, and more readily harmonized with the conflic ting ideas of those empowered to decide. We may be thankful that it is vastly better than some of those awarded at Vienna—especially the medal "for good taste," which is one of the most ludicrous productions of the kind we have ever seen. There are artists in this country who can do work which will compare favorably in originality and excellence with the best work of any country and any age. Either these gentlemen did not compete, or their work did not meet the views of the committee. Committees of this kind do not usually like to invite criticism by venturing any departures from the commonplace.

### Blowing Engine by the Reading Hydraulic Works.

We illustrate herewith a new form of horizonial blowing engine, by the Reading Hydraulie Works. This machine has some points of novelty worthy of attention. These engines are principally used for agitating oil in refineries, agitating acids, chemical operations, ventilating, and the like. They are adapted for plast furnaces, cupolas, forges and similar kinds of work. The first noticeable feature is the small baggageman, and Williamson, depot baggage-but the association are certain of more than re-burgh was then made in four days and a half, 1745, instead of about 1802, as commonly support or the common of the c space occupied by them, the distance between | man at Central Depot. The Chicago Trunk- gaining their money by the increased useful- and now the same distance is traveled in about posed.

and are self-contained; it would be possible to ship, and was manufactured expressly for the

To The Champion Baggageman Of Chicago

The C. T. D. M. B. and E. R. M. Asso.

usual manner, and each man to alternately choose until the requisite amount of baggage is loaded on the two trucks ready for business. The party awarded the most marks by the gow meeting, by Professor Clerk Maxwell. judges to be declared winner. Three truck

the two cylinders being scarcely any greater Dealers-Mutual-Benefit-and-Encouragement-to- ness of the baggagemen, who now have some- ten hours. The smoke stack of the locomotive than is needed to get at the two stuffing boxes. Railroad-Men-Association have offered an ele- thing to contend for, and will universally in use on the Harrisburg and Lancaster Rail-We present herewith two illustrations of This is possible, because the steam cylinder and gant silver vase (gold-lined) to be awarded to strive to obtain the prize, that the Trunk road was very high, and when the train passed under a bridge the upper portion of the stack American rules (as adopted by the National had to be lowered by the engineer, who pulled

### Protection of Buildings from Light-

The following is an abstract of a paper read before the Mathematical and Physical Science Section of the British Association, at the Glas-

The author stated that those who erected The top of the base is ingeniously paved with loads each, single rises, five minutes' interval lightning conductors had paid great attention to the upper and lower extremities of the con

ductor-having a starp point above the building and the lower extremity carried into the earth as far as possible. The effect was to tap, or, as it were, to gather the charge by facilitating the discharge between the atmo-pheric accumulation and the earth. That would cause a greater number of discharges than would have otherwise occurred; but each of them would be smaller than those which would have occurred without a conductor. That arrangement was therefore more for the benefit of the surrounging country, and for the relief of the clouds laboring under an accumulation of electrictity, than for the protection of the building on which the conductor was erected. What was really wanted was to prevent the possibility of an electric discharge taking place An electrical discharge could not occur between two bodies unless the difference of their potentials was sufficiently great

Williamson gives McElwain the odds of three | compared with the distance between them. If, odds being given on either side, but William- equal, no discharge would take place between them. That might be secured by consecting all these bodies by means of good conductors. such as copper wire ropes. It would, therefore,

> with a conducting materfal, to sheath its roofs, walls, and ground floor with a thick sheet of copper, and then no electrical effect could occur within it on account of any thunderstorm outside. There would be no need of any earth connection. They might even place a layer of asphait between the copper floor and the ground so as to insulate the building. If the mill were struck it would remain charged for some time, and a person standing on the ground outside or touching the wall might receive a shock, but no electrical effect would be perceived inside even by the most delicate electrometer. A sheathing of copper was by no means necessary in order to prevent any electrical effect taking place Supposing a building were struck by lightning, it was quite sufficient to inclose it with a network of a good conducting substance. For instance, if a copper wire were carried round the foundations of a house, up each of the corners and gables, and along the ridges, that would be a sufficient protection for an ordinary building against any thunderstorm in this climate: but it might be well to pre-

One of the foreign magazines says that

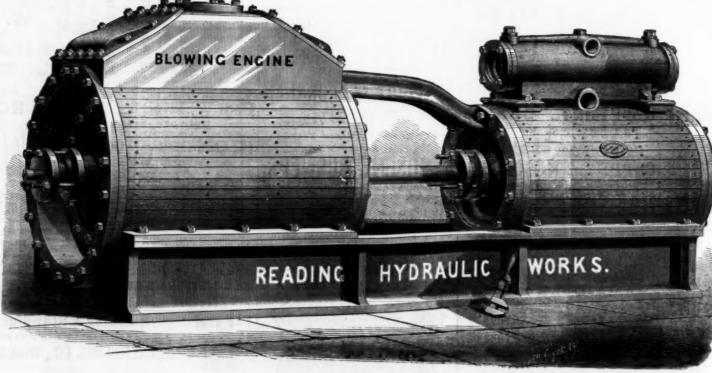


production, but as compared with many of | Both main D valve and the poppet valves, by | enamel. This design is very appropriate ininteresting. Of the reverse there is little to chest in place, and unscrewing a single nut will regulation cap and badge, holding above his suffice when one of the poppets is to be taken head, balanced in one hand, an immense Saration are by no means beautiful, but have the out. The valves of the air cylinder are easily toga trunk, with the lid laying beside him. In cepted. accessible by removing the covers of the valve his left hand he holds a lantern and a ring of

the ancient and modern medals, especially which the main valve is driven, are easily accestions produced in Holland, it is flat and unsible. Four bolts hold the head of the valve of a tall, athletic looking man, wearing the

son offered them and they were at once ac

A Reminiscence of the Olden Time. be sufficient to surround a powder mill



### An Interesting Trial of Skill.

very well designed and capable of doing very foot resting on a grip sack, which shows mo-

purpose. Taken altogether, the engine seems | The figure is in a perfectly natural posture, one | -The Harrisburg Futriot says: In Calder's vent theft to have it built in the wall, and "stage office" is posted an illustrated handbill then it would be necessary to have it congood work. The small size of the machine mentry signs of collapsing. The inside of the printed in 1837. On it are represented a train nected with some metal, such as lead makes the foundation inexpensive, while the trunk is arranged with receptacles for holding of cars and a packet boat, which in that day or zinc, on the roof. It need scarcely simplicity will make the repairs light. The flowers, and is gotten up with remarkable constituted the Pioneer line. On the handbill be added, said the writer, that it is not New York office of the works is at 81 Liberty advisable during a thunderstorm to stand counterfetted with wonderful precision, as are passengers taking the ears at Philadelphia at on the roof of a house so protected or to all the hotel and baggage express labels. The seven o'clock would reach Harrisburg at four stand on the ground outside, or to lean against vase is valued at \$1500, and is in every way in the afternoon. No railroad was then in the walls. worthy of the association which offers it and operation between this place and Pittsburgh, The Chicago Tribuse says. A grand contest the men who will contest for it. Some surprise but travelers were accommodated on packet will shortly take place between McElwain, train has been manifested at the liberality of the gift, boats. The trip from Philadelphia to Pitts- the pneumatic tender-box was invented in Metals.

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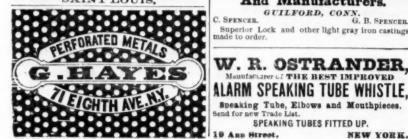
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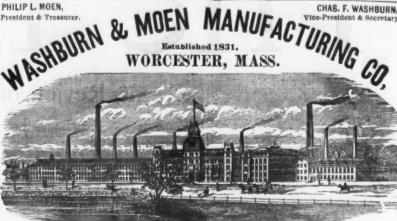
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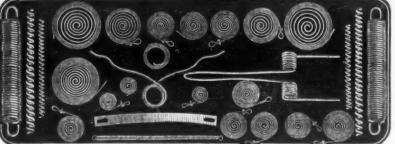
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CHAS. HORNBOSTEL, 56 Broadway, Room 26, N. Y.



Stationary Steam Engines at the Cen- that is claimed for it the invention is one of tennial.

CHAS. W. ERVIEN & BRO. Philadelphia, Pa., exhibit in space B 69, Machinery Hall, several engines of both horizontal and vertical patterns, all of which are in opera tion. A large horizontal engine of the adjust able cut-off class is in use for driving the line shafting which operates most of the wood working machinery exhibited, and is conse quently subjected to great changes of load. The design of the combined housing and bed plate is excellent, being symmetrical, though nassive in appearance, the metal being disributed throughout in such a manuer as will give the greatest strength and rigidity in resistng the strain to which it is subjected. The seat to which the cylinder is bolted, the cross head guides and the pedestal for crank end bearing of shaft, are all included in the one easting which forms both housing and bed plate, and which gives un unusually large base upon the foundation. The cylinder is 16 inches diameter of bore by 42 inches stroke, and carries the steam chest at the back. The throttie and governor are situated centrally upon the top of the latter, while the exhaust occupies a similar position at the bottom. The main valve is of the ordinary form of slide made without lap, and operated in the usual manner by an eccentric, the rod of which is connected directly to the valve stem. To prevent the vibrations of the eccentric rod from affecting the latter (a serious defect in the construction of many engines), a guide is attached, which keeps it always truly in line. The cut-off valve is what is commonly known as the Wabash valve, having been originally designed by Messrs. Merrick & Son. in 1855, for the United States steam frigate Wabash, where it was found to give such excellent results as to lead to its adop tion on many screw engines. It is a slide work ing on the back of the main valve, having an adjustable lap and operated by an independent eccentric. It is composed of two parts, con nected by a screw having right and left-hand threads, and which, passing through a stuffing box in the end of steam chest, carries a hand wheel by which it may be turned to right or left, thus moving the two parts of the valve from or toward each other, and changing the cut-off as required. The adjustment may be ecomplished very quickly and by means of a scale and index attached the exact point of cut-off is shown. A very excellent attachment to this engine is a valve operated by a small hand lever for the purpose of working the engine by hand. It dispenses with the necessity for unhooking the eccentric rod, as is the usual prac tice where a starting bar is used, and is a great convenience in stopping the engine at the proper point for starting readily or for any other purpose which requires the piston to beat a particular point of the stroke. It is, of course, intended only for heavy engines which and strong, and it appears to be durable and capable of the hardest work without sustaining injury. It was designed personally by Mr. Chas. W. Ervien, and in all novel points is entirely original with him. Independently of the excellent judgment displayed in the design, the engine gives evidence of much skill and care employed in its construction, which, in fact, may be said of all engines included in the ex hibit. A horizontal engine of smaller size, having a lap valve and no independent cut-off, is also shown. Two styles of vertical engines are represented by one of each size built by the firm, including in the smaller 2 to 15 respectively, and in the larger one of 20 horse-power. They are strongly built in all their parts, con tain all the latest improvements, and in all respects may be compared favorably with the best makes of their class. This style of engine seems to be in great favor among parties using small power, which is pretty good evidence in

their favor. LOVEGROVE & CO., Philadelphia, Pa., exhibit in space D 75 several sizes of the Whitmore engine, of which they are the sole manufacturers. An illustrated description of this engine was published in the issue of The Iron Age of Jan. 27, 1876.

exhibit, which attracts considerable attention, in which the space is filled up, as well as the exquisite finish on the engines included in the display. An exhaustive article on the subject of "Small Steam Powers," recently published in The Iron Age, applies directly to the case of Mr. Snyder's little giant steam engines, and head is brought back to its place and the cotmay be read with interest as well as profit by ters are inserted in the nearest cotter holes. those practically interested in the use of power for light work. The sizes included in the exhibit are 1, 2 and 8 horse-power of several different designs and styles of finish. Several specimens are plated in gold and silver and in nickel, and would make very handsome ornafor the parlor. Others are highly finished in the material contained in the several a passage in the platen, while the air escapes by parts, while others again bave an ordinary finish, suitable for those who care more for the practical than the ornamental side of the subject. Many persons have taken this exhibit to be models or toys, and are much surprised when informed that they are intended to be useful as well as ornamental. In connection with the engines are shown several boilers of suitable sizes for running the former, and finished with all necessary attachments for the purpose of insuring economy and absolute safety. The exhibit is located in space south of the Welmer blowing engine, near the western end of Machinery Hall.

THE "WELLS TWO PISTON BALANCE ENGINE." exhibited by the Well's Balance Engine Company," of New York, is located in space C 77,

great value, from allowing of almost unlimited speed of piston, a point of the utmost importince in certain classes of engines, notably locomotives and screw propellers. The cylinder is made twice the length usual for the same crank radius, and contains two pistons which travel in opposite directions to each other, or from center to end of cylinder and return. This is eccomplished by means of any suitable form of valve by admitting steam between the pistons at the center of the cylinder, thus driving them apart toward the ends of the latter; when arriving at the termination of the stroke in that direction the steam is admitted at the opposite side of the pistons forcing them toward each other at the center. Necessarily the exhaust takes place at each change of direction, as in other engines. The outer piston, i. c., the one farthest from the crank shaft, has one central rod passing through a stuffing box in the inner piston, and another in the front cylinder head, and having the ordinary cross head, guides and ecting rod for connecting to the crank pin. The inner piston has two rods equidistant from center and periphery in a line parallel with the axis of the crank shaft, each of which has the necessary connections to crank pin. The guides for the three cross heads are necessarily arrange I so as to prevent any interference of the latter with each other in passing. The three cranks are all in the same plane of the axis of rotation, and are equidistant from the latter, the center one (connected to the outer piston) being at the opposite side from the outer crauks, thus, in effect, making a twohanded lever like an auger handle or tap wrench, and the strain being applied always in opposite directions is balanced as to its effect upon the cylinder frame and bearings of the engine, each piston exerting the same force on its respective side of the center, and limitng the strain upon the shaft to torsion only. This is a self-evident fact to anyone who will give it a moment's thought, but to convince those who are inclined to be skeptical on the subject, the engine in question is run at a speed of about 500 volutions per minute with the caps off the journal boxes of the crank shaft, without the latter showing any tendency to move from its oper position. To show the speed of which the engine is capable, Mr. Wells ran it up to the rate of seven hundred revolutions per minute without shaking or heating any of the bearings, and to judge by its action at that speed appeared to be limited only by the necessity for considering the strength of the fly-wheel, the centrifugal force of which not being perfectly balanced, rendering it unwise to go beyond that point. A calculation of the power developed under the conditions above mentioned, and allowing for 60 lbs. boiler pressure, gave the surprising result of nearly ninety-eight horsepower. It is claimed by the company that this engine will perform three times the work of cannot conveniently be moved by hand. All the ordinary single piston engine of the same the working parts of the engine are made heavy size of cylinder upon a consumption of fuel only twice as great, or in other words, effect a saving of 83 per cent. upon fuel, while upon the cost of the engine the saving would be over 50 per cent. For screw steamers it is claimed that this engine from its high speed will admit of a greatly decreased pitch of screw from what is usually given, therby greatly diminishing the precentage of slip, and increasing the vessel's speed in proportion. There is also in operation, in Saw Mill Annex to Machinery Hall, a horizontal engine of this type of much larger size, which is in use for driving one of the large circular saw mills for sawing heavy timber

### Testing Welded Boiler Shells.

The Trade Review, of current cate, has a very interesting article upon the methods now em ployed in testing welded boiler seams.

The method of manufacturing boiler shells with welded seams has led to the construction of an ingenious machine for testing the soundness of such welds, their adaptation and value for the purpose in question being of course primarily dependent on this quality. The auther says: This unique contrivance consists of a fixed hydraulic cylinder, 12 inches in diameter and of 12 inches stroke, connected to a travel-WARD B. SNYDER, ing head by rectangular wrought from bars 5 of New York, has a handsome and interesting inches by 2% inches, pierced with cetter holes of 11 inches pitch; the platen attached to the both from its novelty and the elaborate manner hydraulic ram slides along the bars. This is a brief explanation of the mechanism devised for this interesting operation.

When a boiler shell is to be tested the traveling head is run out of the way along the line of rails, and a shell is run in on a truck; the Pressure is then applied to the cylinder by means of hydraulic pumps; the ram forces the platen against the end of the shell and the joint is in this way made ready for the testing

The shell is now filled with water from a tank by means of a flexible hose inserted into means of a tube in the traveling head, this tube being made to slide diagonally, so as to suit any sized shell; the tube is then closed by means of a cock, and the test pressure is applied by the hydraulic pumps. The boiler seams are welded by means of a gas furnace placed over them.

Fast Travel.—A correspondent of the Railway Age says: Engine No. 193, and by Ham Clyton, dew Conductor Hall's train on the Batumore and Onio Railroad, from Garrett City to South Chicago. 18126 miles, recently, in three hours and twenty minutes. The run from Millord Jauction to Ninety-Second street, ninely-two and two tenths miles, with six stops. ninely-two and two tenths miles, with six stops, was made in two hours and one minute. The correspondent adds: "Better yet! Enguse No. 182 on the Baltimore and Ohio Railroad, run Machinery Hall, where it is represented by a 7x12 inch vertical. This engine is most decidedly a great novelty, and if capable of all fifteen minutes, making sixteen stops." Fron.

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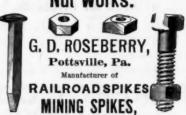
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We take from the records of the Patent Office t Washington the following specifications of certain patents, lately issued, which will be found interesting: IMPROVEMENT IN PROCESSES OF IMPARTING

RESONANCE TO METALLIC ALLOYS. Specification forming part of Letters Patent No. 171,959, dated January 11, 1876, issued to Benjawin Silliman, of New Haven, Conn.

Division A.

This invention relates especially to that class of metallic alloys known as Britannia, pewter, and white metal, and composed of tin or other soft metal bardened by antimony, copper, zinc and the like, which, as now manufactured, are notoriously deficient in resonance, giving when struck only a dull and leaden sound. Whatever degree of resonance or ring the ingots or casts of these alloys may possess is entirely destroyed by the mechanical processes of rolling or lamination of spinning and striking up, by which means the products of this industry are chiefly brought into the desired forms dur ing their manufacture. Many attempts have een made to impart this desirable musical quality to such wares by changing the propor

tion of their ingredients, and otherwise, but

hitherto, and until this invention, without suc

The process consists in submitting articles of Britannia, pewter, white metal, and the like. owever the same may be compounded, and which are destitute of resonance or musical ring, whether formed by the processes of rolling, spinning, or otherwise, to the action of a egulated and well determined temperature just short of their melting point, for a brief but measured time. By this simple process all vessels of capacity, of whatever form or dimension, and all other articles of the class of metallic alloys named, are endowed with the musical quality so justly esteemed, but hitherto wanting in these wares, and supposed to be peculiar to the barder alloys, and which, until this invention, it has been considered impossible to develop in Britannia and other like

In carrying out this invention, provide bath or vessel of capacity sufficient to accommodate the largest articles to be treated. It may be made of copper or of iron, as may be most convenient and must be provided with an easily regulated source of heat, such as is found in a good gas furnace. This bath may be filled with either paraffine or a heavy mineral oil, freed in its manufacture from all the lighter oils of low boiling point, and capable of withstanding a temperature of, at least, 500° Fahrenheit without boiling.

The oils known as "Downer's Spindle Oil" and "Merrill's Neutral Heavy Hydrocarbon Oil," of a density not less than 25 Baume, fulfill these conditions, and are found in com-

The temperature of this bath must be raised to about 220° centigrade, or 428° Fahrenheit, and then more gradually to about 230° cen tigrade, or 446° Fahrenheit—that is, just be ow the melting point of Britannia, which will be found to vary as produced by different makers.

It is quite essential that in every case the expert using this invention should determine, by the thermometer, the exact melting point of his own alloy, and also its temperature of solidification. It will be found by trial that these alloys suspended in the bath will endure temperature several degrees above what they can stand if they are permitted to touch the metallic sides or bottom of the bath. A wire or rod of metal less fusible than the alloy, if permitted to touch it when near the point of its fusion, cuts it like a soldering iron, these two points being experimentally determinedviz., the melting point, and, so to speak, the freezing or solidifying point.

The bath should be kept within, say, 10° Fahrenheit of the melting point of the alloy, and the articles to be treated immersed therein for a brief time, which will vary with the size and weight of the articles treated. For small and rather thin pieces 15 to 30 seconds is a sufficient time. For larger articles of greater weight, like urns, soup tureens, &c., the time may be safely extended to a minute or

Care is requisite in handling objects at this temperature to support them in a way to prevent distortion or collapse, for the alloy when heated to the required degree becomes very flexible. All contact of the articles with like whipcord. Its tensile strength is neverthetools of metal must be advoided beneath the hot bath.

The time requisite for the treatment of such articles as are bathed on only one surface may be somewhat longer than when the imarticles as are bathed on only one surface may be somewhat longer than when the immersion is total. Like all other arts of manual dexterity their treatment is soon learned by an expert workman. Care is needed to avoid contact of water, or even of a damp surface, with the bath at the temperature required, with the bath at the temperature required, so the worder of a puddled ball. There is a good deal of the interest and the rate of a will be forced upon the companies by the will be forced upon the companies by the dath of the more perfectly the cinder is expelled the nor perfectly the cinder is expelled t as the sudden generation of steam might occasion an explosive scattering of the hot bath with serious effects. It is also desirable that the bath should be provided with a hood leading into a well drawing flue, to carry away the heavy vapors given off during the process.

As the result sought is almost instantaneous the expert using this process has it always in his power to judge if the right degree of ring or resonance has been attained, and can repeat the process if found needful. The rapid cooling of the articles after they are withdrawn

temperature, the resonance of the articles is greatly impaired. Such uncrystallized parts failing to vibrate in unison with the rest, a dis cord is produced.

Articles thus treated lose part of the density imparted by the mechanical pressure of rolling. &c., but do not become porous like the cast articles. They also acquire a sensibly increased stiffness or temper, enabling them the better to stand rough usage. This important quality is, equally with the resonance or ring, due to the molecular rearrangement of the particles in a crystalline order, imparting a rigidity which is not found in the laminated and spun metal.

Articles prepared can be soldered, turned, plated, burnished and submitted to any of the nechanical processes requisite in their manufacture, except those of rolling, spinning, and the like, without loss of the musical property mparted by this method of treatment.

Claim. - The process of producing crystalline carrangement and musical ring or resonance in metallic alloys by submitting such alloys to a regulated temperature just short of the melting point, substantially as described.

DIVISION B.

Claim. - A new manufacture, possessing the substantial properties herein described, consisting of articles made from metallic alloys, known as Britannia, pewter, &c., possessing resonance from having been subjected to a regulated temperature just short of the melting

IMPROVEMENT IN COMPOSITIONS FOR REPAIRING CRUCIBLES.

Specification ferming part of Letters Patent No. 177,127, dated May 9, 1876, issued to James Irwin, of Pittsburgh, Pa.

In the operation of renewing partly worn or partly burned out crucibles (in metallurgic operations) various compounds have been em ployed. The best results are attained by the ase of a mixture of soda ash, white glass house sand, old crucibles, and fire-clay. These in gredients are pulverized and mixed in about the following proportions, by measure, viz. : Soda ash, 2 per cent.; sand, 2 per cent.; old crucibles, 92 per cent.; fire clay, 4 per cent.

The mixture is wet with water to a thick luid or semi-fluid consistency, and the crucibles to be treated are then dipped in till, by one or more dippings, they are coated with the mixture to the depth of about an eighth of an inch, more or less; or the mixture may be made the manufacture of rails, a very good result thicker and plastered on. Plaster or apply a coating of it to such parts of the inside of the crucible as may be injured by the metal within or its fluxes. The crucibles, then, when dry, are ready for use. After being used this coating readily scales or crumbles off, and the operation is repeated till the crucible is entirely burned out or becomes worthless. In this way it is possible to add considerably to the life of a crucible at comparatively no expense.

Claim .- A compound consisting of soda ash, and, old crucibles, and fire-clay, compounded with water in about the proportions specified.

### Welding Iron.

The following is an abstract of a paper read by Mr. Richard Howson, of Middlesborough, at the annual meeting of the Iron and Steel Insitute at Leeds. The intention of the speaker was to combat a misapprehension that a bar or plate made out of several peices welded together is not so good as one made out of a bloom formed from a single puddled ball. There is an impending change in the manufacture of finished iron, as it is admitted on all hands that machinery will shortly entirely supersede hand labor in the puddling process. Along with this conviction there is a current impression that iron will have to be puddled in large masses and not divided into small balls as in ordinary practice -that the system of piling must be abolished -that piling means welding and that welding is a mistake-that homogeneity is the thing to be aimed at. Now when the matter is fairly considered, it becomes evident that iron rolled from a puddled ball is in no case homogeneous, and that the larger the ball the more hetero geneous it is likely to be. The term homogeneous can only be strictly applied to iron which has been melted-such as the mild steel which is made in Sheffield, containing a low percentge of carbon. When a specimen of materia of this class is treated with acid, there is usually no apperarance of grain. On the other hand, a piece of ordinary rolled bar, subjected to the same treatment, shows a fiber which stands out less little, if any, inferior to that of a really homogeneous bar. We find when a puddled hall is compressed under hammer or squeezer it is as essential a process of welding as is that of misconception about the real nature of the process of welding, and it is well to inquire what it is, and what means we have at com-

joint, but to do this he has to take the proper from the bath makes no difference either with their musical resonance or their stiffness, both which qualities are equally produced by allowing the articles to cool slowly or quickly. If, however, to save time they are cooled in water, they must be very thoroughly dried before again plunging them in the bath.

If any portion of the objects thus treated fails of belong brought up to the proper crystallizing.

better fluxes than silica; but sand is cheap, and it answers every purpose, provided it is used with judgment, and not in too large a propor-Its influence is felt from the puddled ball to the finished bar, in every stage becom ng constantly more and more extenuated, and so permitting closer metallic contact. If we race its course in some processes we meet with extraordinary results. An armor plate made at the Atlas Works, Sheffleld, was 22 nches thick, and weighed 31 tons. It was nade from puddled balls of the ordinary size, rolled into puddled bars. These were cut, piled and rerolled, and the process was repeated to the extent of doubling six times. The entire mass thus comes to consist of no less than 11,488 distinct laminæ, and each inch contains 28 such laminæ. The area over which the cinder contained in the first pile is spread by such process becomes enormous, and the metallic adhesion is proportionately perfect. A piece of this plate, when polished and treated with acid, showed a near approach to homogeneity. and affords a good proof of the efficiency of welding. The system adopted at Low Moor, although differing from the above, is essentially a system in which excellence of quality is attained by exercising precaution in the operation of welding. In the manufacture of plates, the puddled balls are here hammered into square slabs, which are doubled and redoubled till the requisite weight is arrived at. The final bloom is then hammered into a slab ready for the rolls, not however with the laminations horizontal but vertical. By this means, if there is any blister or defect concealed in the mass it is sure to make its appearance at the surface of the plate when fluished. In the manufacture of bars of best quality the additional precaution is taken of breaking the first blooms and rejecting those which do not present a satisfactory appearance in the fracture. Referring now to the difficulty of dealing with large masses, as compared with what may be called the oldfashioned systems, it may be urged that the time has come when not only better iron has ome a necessity, but also cheaper, and that the best mode of effecting this end is to puddle on a large scale. Now the necessity for economy is admitted,

and it is not denied that within certain limits in machine puddling, the size of the balls may be advantageously increased. For instance, in might be attained by puddling in weights equal to one rail. By transferring the ball to a light squeezing machine while hot, and then hammering into a bloom, no doubt an excellent rail might be produced with only twice heating, employing, at the same time, in great part, machinery which is already in existence. If, on the other hand, we have to deal with a weight of three rails instead of one, it cannot be manipulated with existing appliances, but it involves the use of new machinery of a much more costly character, while, if the foregoing remarks are correct, the risk of defects and flaws in the fluished article is increased. Other classes of iron need not be specially reterred to. The same general views hold good in every case. An armor plate of however small dimensions cannot be made out of one ball direct, because it would arrive at the fluishing stage without having undergone the requisite work for securing uniformity and soundness. So in other cases. The supposed homogeneity of the single ball plan is yet a conjecture, and likely to prove a fallacious one if pushed too far, while its economy is more apparent than real. Granied that machine puddling will before long entirely supersede hand labor, the question lies between working on a large scale and on a comparatively small one. The advantages claimed for the former may be summed up as follows: A saving in fuel, in labor, in waste from crop ends and in waste from reheating. The extent of such saving, however, depends upon the class of manufacture, and in no case is it very large. On the other hand, we have the sacrifice of existing machinery and the expense of erecting new of an expensive class. We have also an increased liability to loss from the folding up of raw iron and fettling in the puddled ball, and generally greater difficulty in obtaining a uniform and reliable product, accompanied with more trouble and cost from wear and tear, and the alarming risk of stoppages from the breaking down of gigantic machinery. We may venture to predict that a year's experience of the two modes of working would prove in favor of the smaller furnaces. squeezing machine while bot, and then hammering into a bloom, no doubt an excellent rail

### Iron Telegraph Poles.

A correspondent of the Tribune urges the claims of iron telegraph poles as follows :

The only change of telegraph wooden poles thus far suggested is that of putting the wires under ground. The mechanical and electric difficulties connected with it are well known to electricians, and the first cost and the failure thus far to secure perfect insulation for a greater period than two or three years effectually deters the officers of any company in this country from experimenting in it on a large scale. But the principal difficuity lies in the fact that whatever is done in New York

abandon the subject entirely. There is cer-tainly a large measure of relief to be secured by the use of iron poles; they can be obtained and used for about one-twentieth of the cost of what it is, and what means we have at command for securing efficiency.

When two globules of mercury, immersed in liquid, are caused to approach, a slight concussion causes them to unite and the liquid between the two is perfectly expelled. This is an example of a good weld. A smith of ordinary skill is able to unite two bars of iron so firmly as to give way in any other part rather than the loint, but to do this he has to take the proper.

used for about one-twentieth of the cost of the underground plan, and at not very much more than the very capital of Europe they are the only "air supports" allowed to be erected in the streets, they possess the merits of being uniform, at least ten times more durable than wood. A wrought iron pole does not fall; it bends, slowly and but partially, out of the perpendicular. It is impossible by any one as to give way in any other part rather than the and long before any danger can occur it will show its weakness so evidently that its useful-

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- upon reumstances.
  For de ermining the per cent, of Sulphur and Phosphory s in Iron or Steel ..... For ecch additional constituent of usual occur-
- rence.

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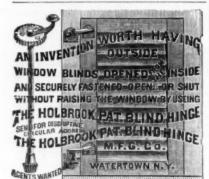
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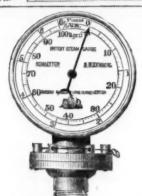
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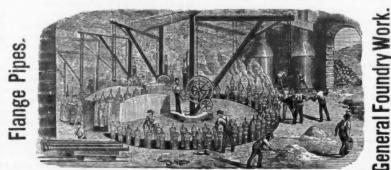
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11	<b>Ierchant</b>	Bar	Iron				-				-			20,000	tons
11	Pig Iron					-				-				35,000	4.6
F	Railroad 1	Iron	-				-							40,000	44
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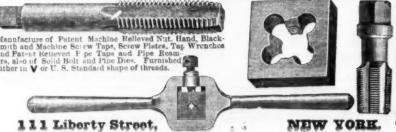
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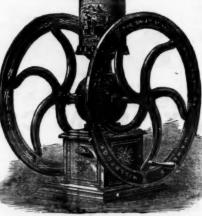
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Machinists' Tools at the Centennial. (Concluded.) THORNE, DE HAVEN & CO., of Philadelphia, Pa., exhibit a number of different kinds of drilling and boring machines, most of which are patented by the firm and constitute their specialty, in the manufacture of which they have been very successful. Proba-ing the work for which they were designed. A cooper, jones & Cadbury, bly the most important of these machines are the portable power drills, which supply a long feed and quick return motion to spindle. The present class, which are designed for the use of felt want, by obviating the necessity for hand drilling, except in rare instances. They have ample power and speed suitable for the differtion allowing of the drill being placed in any are the inventions of Mr. Cooper of the firm, and ent sizes of drills used, and are capable of performing the work as well and quickly as a stationary drill press. The base of the machine is composed of a hollow column or sleeve, having a foot with necessary provision for clamping to the work in any desired position. On the back of the column is a horizontal sleeve for angles greater than 45°, which (although from the large range of adjustment of which the head is capable, it is not absolutely essential) is preferable on account of its superior rigidity. to machines having the necessary vertical, or rendering its appearance clumsy. The head to boxes are made large and the spindle heavier ongitudinally, and have bolts for clamping on to the post, which holds the latter more firmly than is possible by the use of set screws. The post has ample range of vertical and radial adjustments, and carries at top the radial arm which supports the head. The latter being attached to the arm by a ball and socket joint, has unlimited adjustments for any angle or direction. The driving and cone pulleys are grooved for round belting (preferably of cotton rope), and by a very ingenious though simple this machine, however, the different kinds of adjustment, by means of which the tool can, device, the machine may be placed in any required position or distance, irrespective of the countershaft. The driving belt is shifted by means of a rope which may be carried to any convenient position within reach from the machine, thus giving the operator as perfect control as would be possible with a stationary machine. The radial arm is adjustable from or toward the post, which permits of several holes being drilled without changing the position of the base. For use on heavy work which requires a great expenditure of time and labor n handling and adjusting under a stationary drill press, this machine appears to be a very valuable improvement, and would soon pay for itself in the time saved by its use. The exhibit comprises all the different sizes built by the firm, having a range of capacity for drilling and boring from the smallest drill up to holes of 8 inches diameter. This machine was awarded the first premium at the Franklin Institute Exhibition in Philadelphia, in 1874. An improved vertical drill press of is an automatic irill grinder, designed especial this machine as an ordinary Fox lathe, the the column goose-neck pattern is exhib-The circular table is carried by a ited. radial arm upon the column having the rack uous drill. The great importance of accurate ple manner. A sliding rack traversing the and pinion vertical adjustment. The spindle is grinding is scarcely appreciated in many shops, length of the bed beneath the carriage and counterbalanced, and has a quick return motion. The feed is automatic or hand, and has all requisite changes. The driving cone has four speeds and is back geared, making eight changes. The bevel gearing for driving the spindle is inclosed, and all bearings well protected from dirt. The machine is arranged for an overhead counter. The radial drill shown This is a very serious feature, as many a piece length. All the gibbs on both machines are embodies some patented improvements, and has of work has been "botched" or completely taper, all bearings scraped to perfect surfaces, the appearance of a very substantial and effl. spoiled from this cause. Then, also, it requires and the work throughout is first-class in every cient tool. The column is bolted to a base plate which has T slots for clamp bolt heads for holding large work. At right angles with the base plate is the table, having a vertical adjustment by rack and pinion, which is operated by a horizontal shaft having a crank at the ing at all. This will account for many a break front of the table, and is connected by means of bevel gears. The table has a vertical side surface, provided with T slots for clamping proper clearance to the cutting edge; if too work, and is in many cases a great convenience. The head is moved in or out by a hand wheel operating a rack and pinion. The feed is automatic or hand and has a quick return. The by being deprived of the necessary support spindle is driven by worm and gear, and the from the metal back of the edge and be liable cone-four speeds-has back-gearing and is to chip off. If not enough clearance is given placed at top of the column, leaving ample the result is that the drill will not cut, or if space for placing the counter at the bottom and it does the continuous rubbing develops so giving the necessary length of belt. The arm much heat from friction as to burn the drill. also exhibit their patent multiple drilling ma- As Mr. Van Haagen's machine is constructed chine, having a gang of six spindles, each of with a view to performing this work in a manwhich has its own independent adjustments, ner mechanically perfect, beside doing it very patent. This spoon, though it was not and any or all of them may be used at once, as quickly, it is obviously a valuable addition to in the legal sense solid, was thickly coverthe character of the work demands. The capacity of the machine is for holes up to I inch diameter in wrought iron or steel. The table has ample vertical adjustment or may be seen in Machinery Hall, Sec. C, Col. 30. has ample vertical adjustment, or may be removed entirely, if necessary. A stop gauge of Providence, R. I., exhibits in Space D 7, Col. is briefly this: During my electro experiments for regulating the depth of boles is attached 47, Machinery Hall, a lathe tool and holder, or Mr. Mayer had frequently seen their results in for each spindle, and also a device for spacing

tion is stopped automatically. In shifting the

ery Hall.

C. VAN HAAGEN & CO., Philadelphia, Pa. This firm exhibit a numportable hand drill is shown having automatic of Philadelphia, exhibit two machines of the performing a variety of work of such extended than ordinary. similar to the cotter drill, while for surly for twist drills, but capable of performing the work equally well on any form of continbut it is, nevertheless, obvious to any mechanic longer than the other, the point is thrown out the distance the point varies from the center. angle to both lips, and as a consequence of any variation in this respect, the lip having the greater angle has all of the work to perform, while the other is merely scraping, or not touchage of drills for which there is no apparent cause. Another important point is giving much is given the drill will chatter and work badly, especially just as the point goes through. beside which the lip will be greatly weakened

HORATIO L. HOLMES, substitute for the tool post, of such exceptional copper, and naturally became desirous to know and lining rivet holes, &c. Each head has its merit as to deserve the special notice of me- how far the art was applicable to the deposition independent automatic feed, and the spindles can be can be adjusted vertically to compensate for irregularities in thickness of the work or difficulty. The holder, which is a malleable if a flattened out Mexican dollar to act as the ferent lengths of drills. The automatic feed is iron casting, is held in position on the rest by a opposing plate in the small galvanic arrangeput in operation by means of a hand lever, square headed cap screw, and admits of all nec- ment I had then in use. Some fortuight after I which upon being reversed causes the drills to essary adjustment. The tools of all shapes rerun up clear of the work, when the return mo- quired for the many different kinds of work, rough as it came from the trough. I remember such as diamond, round and square nosed, cutwork the stops are let into the last holes and ting off, beading, &c., as well as any special quarter ounce heavier than when it was reusure the following row being drilled perfectly forms for making irregular shapes, are milled in line with the previous ones, beside spacing to the required form and hardened the entire them accurately. This machine is designed for use on any kind of work requiring holes to be requires grinding upon the end only, and may I suggeste drilled in long rows, such as boiler plates, ship be used up to a very short stump, thus effect at this would be to cut into it deeply with a plates, iron beams, columns, &c., for buildings ing a great saving not only in time required for graver, which Mr. Mayer had done accordingly, and bridges. It is undoubtedly a great time the frequent dressing necessary in using the or- and on calling on him a few days after I was saver, beside doing the work more accurately dinary forms of tools, but also of material of told it had stood the test I suggested. I then than could be done except through the greatest care by the ordinary method. It is of the most vital importance that all rivet holes, more the stump that is always left after the tool be- I had forgotten all about this spoon till my short piece of Dar steel or a size suitable for ture of one or both of the sheets, which must sooner or later show signs of weakness, and frequently produce disastrous results. All the machines in the exhibit of this firm are well built, and as simple in construction as is consistent with efficiency in the proper perform-

ance of their several functions. The location allows of much heavier cuts and coarser feed of the space is Section B, Column 30, Machin- than ordinary practice, and at the same time is less liable to strain the lathe or spring the work. Therefore the time saved through its rapid working constitutes the most important point ber of tools for general shop use, which show of superiority. The small cost of this attacha large amount of ingenuity in their construc- ment in addition to its real merit should insure COOPER, JONES & CADBURY,

and vertical radial adjustments, this combina- aspecial branch of their business. The machines required position. The post which carries the embody many improvements for a more perfect arm has a slotted foot, and is also furnished degree of accuracy than is usual in this class with a hinged adjustable clamp for fastening of work, beside the equally important considto the work. It is of sufficient length to give erations of durability of the machine and raample vertical adjustment. The machine is pidity of operating. The first which we will rated for 11/8 inch hole in wrought iron, and notice is what is technically termed a Foxit can be arranged for power when desired. A lathe. In its design much good judgment has "Bement" column drill press is shown, having been displayed, the metal in the different parts Van Haagen's patent attachment for horizontal being so distributed as to give the greatest boring and drilling, and which, when applied strength, without marring the symmetry of, As the slide rest has both range as to render its name-"universal"-not handles at the front, it can be used with the inappropriate. It may be used for shaping, poppet-head close up to the work. Those acsurfacing, milling, horizontal boring and drill- customed to the use of these tools will appreing, gear cutting, key seating, &c., &c., all of ciate this feature as one of the most important which operations it performs well and quickly, improvements ever applied to machines of the and without the necessity for complication of kind. The tool rest of the screw chasing apparts, which is frequently an objectionable feature of universal machines, which would be not overhang the tool post further than the more correctly termed combined machines. In depth of the screw to be cut. It has a crosswork are performed by different combinations without being loosened, be brought central of the several functions, which are vertical, with the work, which can be done with the tranverse and longitudinal screw feeds to table, utmost accuracy in a few seconds. The slide and a horizontal feed and rotary motion to cut- of the poppet-head is provided with a stop ter spindle. The latter carries Van Haagen's motion on the cross-feed, which can be thrown patent expansion boring tool, having a cutter in or out instantly. The gearing of the screw in the end of an adjustable arm, either one or chasing attachment is carried by an eccentric two of which latter may be used. Different stud, which by means of a handle admits of kinds of cutters (which are made of round bar being thrown in or out without stopping the steel and held by set screws) are furnished to lathe, even when running at a fast speed. The suit the character of the work, i. e., side cutting, other machine exhibited (also a lathe) has all as in boring; or end cutting, as in milling, the features of the one first mentioned, and slotting, surfacing, &c. For slotting and key in addition an attachment by which it may be seating the work is performed in a manner used as a screw machine of the most improved pattern. A turret-head placed upon the top facing and milling the operation is sub-startfally the same, but a much wider sweep all the necessary tools, and the complete operof the poppet-head carries the dead center and of the cutters is given, the limit being about ation may be performed automatically or by 10 inches circle. The firm build a machine hand, as desired. There is also a cutting off embodying the different features of this rest with two tool posts and the ordinary stop attachment, which is capable of even a motions. The hollow spindle has a bore of 1% greater range of work. A very important tool inch for the reception of large work. In using weight of the turret would be a serious inconvenience were it not provided for in a very simpoppet-head is operated by a 8 inch pinion, who will give the subject a little thought. By having a hand wheel of 12 inches diameter. grinding one lip, or cutting edge, of the drill By means of a clutch the poppet-head or alide rest may be fastened to this rack, when by the greatest ease. The leading screw on this lathe admits of chasing screws of 6 inches in great care in grinding by hand to get the same particular. From their position they might easily be overlooked, and as they are well worth inspection by those interested in the use of such machines, can be found in space Sec. B, Col. 19, Machinery Hall.

### The Origin of Electro-Metallurgy.

Mr. Thomas Spencer, of Euston Square, London, claims to be the original inventor of electro-metallurgy. In a letter recently published he says:

Those who wish to see the first electro-plated article-as I suppose it to be-may have their curiosity gratified in the Liverpool Museum, in which there is an electro-plated teaspoon with my initials engraved on it, and the date, May, 1838. This date, be it observed, is above two years in advance of that of the Elkingtons' the date was engraved on it. Its history took it to him, thickly coated with silver, but it was weighed and found to be about onecelved. The object in putting so much silver on was to test the adhesion of the one metal

I suggested that the better mode of arriving

especially in steam boilers, should be accurately comes too short for use, and which in the ma- departure from Liverpool in 1851, when, at a spaced, as by their not coming properly in po- jority of shops is very seldom utilized for any public meeting, it was referred to by Mr. Mayer sition, the use of the taper drift pin is necessi- other purpose. This waste becomes a serious as being in his possession. Since then, being tated, and the consequence is a dangerous matter in tools for the heavier lathes, as a very in Liverpool, and going through the vast col straining and frequently an undiscovered frac-short piece of bar steel of a size suitable for lection known as the Mayer Museum, -so muni-

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The American File Company have the exclusive right to use the Bernot process for cutting files. By this method all the advantages of hand cutting are secured, together with an accuracy unattainable in hand work. They are the only manufacturers who employ machinery for testing files and steel.

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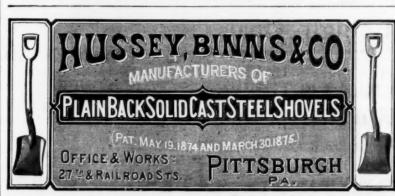
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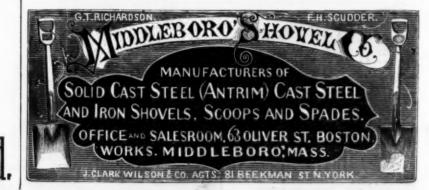


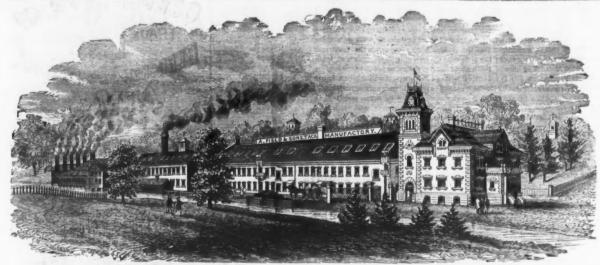
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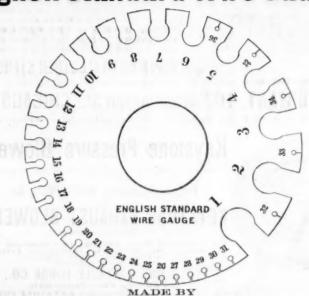
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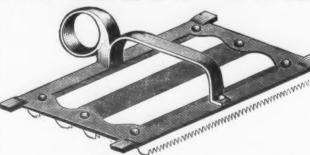
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187 A 16-inch log was sawed off in 17 seconds by hand with a Lightning Cross-Cut Saw, at Pennsylvania State Fair, on September 30th, 1874, before President Eby;

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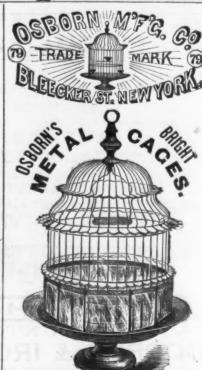
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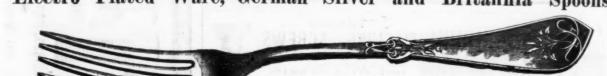
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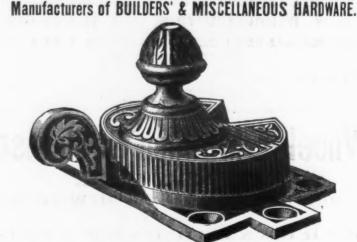
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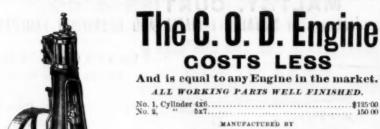
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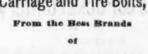
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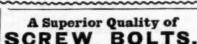
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New York, Thursday, October 12, 1876.

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### RATES OF SUBSCRIPTION AND POSTAGE.

- Business Manager

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### The Centennial Medals.

Thus far the work of the judges appointed by the Centennial Commission to make awards of premiums to exhibitors has been regarded with general dissatisfaction. The impression prevails that the medals have been given without proper discrimination. Those who do not receive them are, naturally, disappointed and dissatisfied. Those who did, feel, as the rule, that the honor was conferred so larger per cent. will be in blast. The liberally that it has but little value. We fear this objection is well taken. To the the eastern part of Pennsylvania leave no general public it would seem as if the principal care of the judges had been to avoid invidious distinctions between exhibitors, and to disappoint no one's expectations or wishes. We find on looking over the official list before us, that, in one group, as many as seven medals have been awarded for walnuts, six for filberts and several (we have not time to count them) for chestnuts. It would seem to the average mind that if any premiums were to be awarded for such things at all, one would suffice. Giving medals by the handful in this way does, we admit, seem the trade, blowing when the demand like making honors rather cheap, and when the general list swells up high among the thousands, the impression is strength-

The plan of presenting medals of small hibitors of articles worthy of official noals whose exhibits possessed peculiar excellence. The intrinsic value of the medals is a matter of no consequence. They silver, but the idea of giving the same medal to the Corliss engine and a hat full them. of chestnuts, to Herr Krupp and the ingenious lady who made the whistle out of the skin of a pig's tail, is, to say the least, ludicrous. Men who have spent thousands of dollars, and made such displays as the world has never seen before, do not like to receive the same medal as is awarded to the venerable old ladies who have sent bed quilts of variegated patchwork. The thing is incongruous, and nothing which the judges may have to say in their reports will make it much better.

If medals were to be given by the wagon load, would it not have been better to have presented one to each exhibitor? It would then have been understood that they conveyed no honor, and were merely distributed as mementos of the Centennial to those who had contributed to its interest and success by becoming exhibitors. The reports would then have been the real awards, and in these the good qualities of the successful exhibits would have been recorded. There would then have been nothing to complain of. As it is, however, the medal business is likely to bring the whole work of the judges into contempt. Every one familiar with the exhibits in any class or department, who will look over the list of awards, will see that some, perhaps many, medals have been bestowed upon undeserving exhibits. The list is full of surprises and disappointments. There has evidently been discrimination, but how or on what plan we cannot imagine. Under the circumstances, we think the public verdict will be that, while it is no great credit to have received a medal, it is no discredit not to have received one. What happened at Vienna, where honors were so easily won that many exhibitors declined them, should have taught our commissioners the folly of trying to please everybody.

### The Outlook for Pig Iron.

The blast furnace table, published in our issue of September 28th, makes a showing of the anthracite furnaces in eastern and middle Pennsylvania that is anything but satisfactory. Of the 161 furnaces in the sections named, but 54, or between 33 and 34 per cent., were in blast on the 1st of September. This is 2 or 3 per cent. more than the average for the country, but the anthracite furnaces of Pennsylvania, with the proximity to the fuel used, should make a much better showing than this, and the indications are that by the time of our next report a reports we are daily receiving from doubt that in that section, at least, there is a decided belief that the reaction has come. As will be seen by our "Business Items," ore banks that have been idle are being reopened, and those that have not suspended are showing signs of increased activity. Collieries are resuming work full force and full time, and blast furnaces are being put into blast. The action of the Thomas Iron Company in this particular is significant. This company has generally the reputation of running its furnaces in accordance with the state of seemed to warrant, and blowing out when it would not. For months they have been running light, but now they have six out of their eight anthracite furnaces in blast, Of course, we understand that the medal and it is reported that the other two will also repairs and the cost of blowing in and of one of the leading British engineering put it on the ground of retaliation. "The

however, does not make the matter much other, that the stocks in hand in the document, however brief. The receipt of duction. It must be remembered, howsuch a medal at an international exhibition ever, as we show below, that the Thomas has hitherto been supposed to indicate that Iron Company have exceptional facilities the exhibitor receiving it had shown for manufacturing iron cheaply. It will something of superior excellence, value or also be noticed that Mr.G. Dawson Coleman beauty. The accompanying report was has blown in one of his furnaces, that the merely an explanation. In this case the ore mines of E. & G. Brooke and of Seyfert medal itself means nothing more than McManus & Co. are being reopened, that a report has been made, and unless which would indicate that the Bushong Issued every Thursday morning. Contains full is known, the medal is practically without blast in Reading. Eckert & Brother are Trade Reports for the week, brought up to the close of significance. To say that one received a contemplating blowing, the Crane Iron significance. To say that one received a contemplating blowing, the Crane Iron bronze medal at Philadelphia will be to Company blew in another furnace on the cause a smile, and to suggest the idea that 28th of last month, and at many points he must have made a poor showing indeed fires have been started in the furnaces and prepartions for blasts have been made.

The reduction in the price of ore has intrinsic worth, accompanied by a report, had a stimulating effect on the iron inis, we think, a good one. We also like the dustry. Just what the reduction has been idea of making the medals uniform, so it is difficult to say. Some of the furthat the real value of the award shall be naces bought coal at the first sales after found in the accompanying report. We the combination broke, and got it lower think, however, that while reports, diplo- than they could buy it now, while the mas, &c., might have been given to all ex- present price to furnaces seems to be in doubt, and perhaps it really varies, owing tice, only those should have received med- to the keen competition and the irritation consequent on the breaking of the combination. We give below extracts from two letters bearing on this point. They might as well be of bronze as of gold or are both from persons whose names would intelligent iron-master will ask to be deliv-

> The following is from a Lehigh Valley furnace: "We have only had a reduction of 25 cents per ton in price of coal and 15 per cwt. in freights. Our average consumption of anthracite coal from January 1st to July 1st was 1 ton 12 cwt. per ton of iron. Before the break in price coal cost at our works \$3.28, now \$2.94:

> From the Schuylkill Valley: "Prior to the break in the coal combination the price of lump and steamboat coal was \$2.85 at Schuylkill Haven, the shipping point, To furnaces and rolling mills it was 25 cents per ton less, or \$2.60. From the shipping point to Reading the freight was 80 cents per ton, making the coal there \$3.40. Now the coal is \$2 and freight 80 cents-\$2.80 at Reading. I understand some parties are buying at

\$1.75 at Schuylkill Haven." An analysis of these figures will show considerable of a variation in the price of fuel per ton of pig, as well as in the percentage of reduction in cost of iron caused by the reduction in price of coal. Take the figures from the Lehigh Valley. The coal per ton of iron is 1.6 tons, which would cost, at the old price, \$5.24 per ton of pig, and at the new \$4.71, a reduction of 10 per cent. In the Schuylkill Valley, assuming the amount of fuel to be the same, viz., 1.6 tons to a ton of pig, at the old price the fuel would be \$5.44 per ton of iron, and at the new price \$4.48, a reduction of 171/2 per cent. But if we take the price of coal at Schuylkill Haven at \$1.75, the cost of fuel per ton of pig would be \$4.08, or a reduction of 25 per cent. On the subject of this reduction the Bulletin of the American Iron and Steel Association has, in its issue of Sept. 20th, the following: "We have taken pains to inquire "Lehigh district it will not average 50 "district it will not average \$1 a ton."

This would give very nearly the figures we have, ours being 58 cents in the Lehigh Valley, and, in one case, in the Schuylkill Valley 96 cents, and in the other \$1.21. Considering the difficulty in arriving at the exact prices paid and the amount of coal consumed, as well as the further fact that there will probably be a sharp competition for the furnace trade, we do not think the latter figure will be too great an estimate of the saving in the Schuylkill Valley, and we would be inclined to increase the amount over 53 cents in the Lehigh Valley

In regard to the present cost of making pig we have the figures of the Thomas Iron Co., for December, 1875. The works are well known as the largest and among the best conducted in America. The com pany mines its own ores; works low grade ores (average of five years, 41 6 per cent.) ; has short transportation for fuel and ore (average 30 to 35 miles); smelts with anthracite coal; uses large furnace, "with blast (900° Fah.) and high pressure; has produced on a long average, 33 per cent. of ment inspired by the justinct of self-pre-No. 1 X, 28 per cent. No. 2 X, 31 per cent. is only a token that an award has been soon be running. This seems to indicate out. In December, 1875, the total cost per journals, we find the displayed cards of "American government has done us vast made, and that the real award of value is two things: one, that pig iron can be made ton was \$30.32, made up as follows: Coal, 17 prominent firms advertising American "injury," say they, "by protecting American"

the written report of the judges. This, at the present figures at a profit; and the \$5.99; ore, \$10.12; limestone, 64 cents; machinery and tools, and such specialties taken as the yield-\$3.73 per ton.

If the above is approximately correct, it Lehigh Valley iron can be made at a small profit. It is possible that this is not genselves. In this struggle for existence these must succumb. As we have already sugcoal and a market-that is, it is the well spirit and understanding:

### Bessemer Steel.

The condition of the Bessemer industry is such that we may be pardoned for again referring to it. While it is a fact that some large orders have been placed both East and West, it is also true that steel rails have at last reached a price at which it appears almost impossible to produce them, and the result must be either that some understanding must be reached besome mills will be compelled to stop until better prices. Of course, there are other alternatives, such as cheapening the cost or waiting until the mills that are ready to take orders at low prices are filled up; but relief from these measures is slow in coming, and we speak now of immediate relief. At the Edgar Thomson Works just at this time there is, fortunately, a necessity for repairs, and they will shut down next week for several weeks. We learn also that the Bessemer manufacturers the demand is so much better as to afford have a meeting in New York this week to endeavor to reach some understanding, but we are not at present advised of the result.

How great the decline has been will be more readily seen when it is remembered that in March, 1868, steel rails sold at \$74 per ton, at works, and that within a few days they have been sold in the East at \$50, delivered at Amboy, or about \$48 at the mill. In the West they have sold at \$48, at the works, one-half cash and onehalf six months. Each order was for 5000 tons for the Pacific Road. A year ago they were selling at \$66 to \$68, and iron rails

was made in this direction about a year ago, but it was unsuccessful. If an intelligent and earnest effort is now made. there is no reason why it may not succeed.

### English Protection Against American Manufactures.

The following significant dispatch was cabled from London under date of October 7th:

The Sheffield Telegraph to-day publishes the following: "In consequence of the injury to Sheffield trade by America's heavy protective duties, representations have been made to Earl Carnarvon, Secretary for the Colonies, suggesting that heavy import duties be imposed in retailation on American produce, both in England and her colonies. To these representations. Lord Carnarvon replied on Friday that, 'as will be seen on reflection, the proposal is not one which her majesty's government could entertain.'"

This does not mean exactly what it may seem to mean on first reading. The idea desire protection. It is simply a move-

labor, \$3.56. Assuming the cost of fuel at as American saws, axes, tailors' shears, better. The medal is what the exhibitor Eastern part of the country, and the present at this furnace to be that given &c., are largely sold by resident agents in has to show the general public, which will prospective consumption, are such as to not take the time or the trouble to read a justify something of an increase in proand labor as 10 per cent. we would have Sheffield manufacturers have any fear of a total reduction in the cost of \$2.54, mak- being driven out of their own home maring the total cost per ton \$17.78. These kets by American products. Not so, howreductions certainly do not appear exces- ever, in the British colonies. These are sive. The item of labor is even at the re- the real battle ground of competition. duction nearly double what it is costing During the past few years American goods the best furnaces in the West, and the ore have steadily gained in favor in the British would still average-41 per cent. being colonial markets, and are rapidly and surely displacing English hardware. The loss of the American market which folshows that at one furnace at least in the lowed the imposition of the tariff in 1861 was a severe blow to the prosperity of the leading Sheffield industries; but the coerally true; indeed, we think it probable that lonial markets remained, and to the deit is not. While there are many anthracite velopment of these every energy was difurnaces in Pennsylvania that can either rected. When protection had borne its make at a profit or not at a loss, there are legitimate fruit in this country, in extendmany that cannot run and clear them- ing and diversifying our industries and developing our skill and resources, and we began to make goods at prices which, congested, the "survival of the fittest" holds in sidering their excellent quality and finish, the evolution of the furnace industry, and admitted of their exportation to foreign the "fittest" is not the one away from ore, markets, the attention of our manufacturers was directed to the British colonies as located furnace. The poorly located ones inviting fields for the display of enterprise. might make money if iron would reach The early ventures in these directions were the figures of several years ago. There attended with encouraging results, and bewas no struggle for existence then, but forethe Sheffield manufacturers were aware from such a condition of the market the of what was going on, our axes, hatchets, saws, hammers, cutting tools of all carry the greatest weight did we publish ered in litanies that shall be full both of kinds, and many other of our manufactures of iron and steel had gained a foothold in the colonial markets from which no pressure of competition could dislodge them. The effects of this enterprise were first felt in the falling off in orders from Canada and the maritime provinces of the Dominion. This was followed by a falling off in orders from Australia and New Zealand. In these markets the best trade calls for American goods, which are preferred because they are lighter, of better shape and finish and more "handy." In an article on the subject of American comtween the manufacturers as to price, or petition with English edge tools, published a few months ago, the Birmingham Post

ulating steel, both shear and cast. Sensible of this, certain American firms are pushing their opportunity. Hence it comes about that American forks and shovels and axes are to be had wherever edge tools are offered in this country. But it would seem that the Americans believe that they can compete with us much more successfully by having branch establishments to manufacture their specialties in this country, rather than by shipping their products from the other side. \* \* If American edge tool makers should begin to produce here goods that are already running English makers hard, then it is to be inferred that their example will be followed by other 'ransatlantic hardware manufacturers. If, in such an event, the English firms will keep as well employed as they now are, is another matter.

Of our competition with English bard-

Of our competition with English bardware in the colonies, the Ironmonger lately said:

were selling at \$66 to \$68, and iron rails were selling at \$46.

The cause of this decline appears to be mainly an over supply, but this need not accessfully into the reduction in the cost of plg iron caused by the break in the cost coal combination, and learn that in the cost coal combination, and learn that in the cost combination, and in the Schuylkill officents to the ton, and in the Schuylkill officents to the ton the United States have competed with some of the British firms in certain foreign to the success with which hards to the success with which hards to the success with which Thither it is well known the United States manufacturers continue to send the goods they make at rates much under those wanted by the English manufacturers. But this is not all. Some of the manufactured goods sent across the Lakes into the Dominion are said to be more handy than the English patterns. Some time ago we reported that the United States iron and hardware manufacturers were pushing their advantage in Australia and New Zealand. In those markets, hkewise, American enterprise is still disagreeably apparent. The worst of it is that not a few of the American goods are declared, as to quality, to surpass our own. of its that not a few of the American goods are declared, as to quality, to surpass our own. As to the Antipodean markets, all that we have here said is borne out by a communication which has been received by a firm of Birmingham merchants from their agent in Melbourne. He writes as follows: "You will notice our indent runs more on American ironmongery than formerly. Their goods are far superior to English made, and latterly they have been much cheaper. There is no comparison in the profitathey pay us, and they give universal satisfacthey pay us, and they give universal satisfac-tion. Small wares, locks, tools, &c., indeed, all sorts of American made goods, are now being sold in the market; and when once used, seen, or sold, the user or buyer will never again look at English made articles of the same class."

These two quotations, which guardedly and reluctantly admit facts which were of "retaliation" does not enter into the carefully concealed until they became mat-"all modern improvements," a very hot reasons why the English manufacturers ters of common talk in trade circles, show what is the motive which actuates the Sheffield manufacturers in seeking to seservation. They are feeling the effects of cure the imposition of a tariff on American No. 2, and 8 per cent. No. 3. The cost of American competition at home and abroad goods brought into Great Britain and her the ore includes not only the mining ex- to an extent which fills them with serious territories. They want "protection." It penses, but also a royalty of 25 cents per forebodings of the future. They may not would be humiliating to confess it, after ton for brown hematite, and 50 cents a ton be ruined by it, but they are already crip. all they have said about the folly and for magnetite. The item of labor includes pled by it. In looking over a recent issue wickedness of our tariff policy, so they

"can manufacturers until they have met "the wants of their own market and are "reaching after ours. Let us retaliate by a ta 'If for our own protection.'

The manufacturers of Sheffield are not the only ones in Great Britain who are heginning to feel that a little protection just now would be a good thing for British industry. The paper makers, the sugar refiners, the cotton manufacturers and many others are clamoring for protection, and appeals to the Home Office for some form of protection against foreign competition are matters of almost daily occurrence. It is not probable that the British government will take any action in the matter until forced to it by pressure of public opinion. The "traditional policy" of free trade will not be abandoned so long as the classes which now govern the country continue in power. It is quite certain that the people of this country will never trouble themselves in the matter, and that we shall not seek to influence either legislation or public opinion on the subject. They will best promote our interests by adhering to the free trade idea, and we shall neither send money, tracts nor missionaries to convert them to our own way of thinking. We would suggest, however, that if any of our discomfited and unhappy Sheffield competitors should decide to follow the examples of the Sandersons, and come here to regain the trade they have lost, they will receive a hospitable welcome and find better on portunities for the investment of capital than are now offered in the manufacturing districts of England.

The proposal of the Reading Railroad Company to attempt the exportation of anthracite coal to South America and other countries now largely supplied by England, is regarded with much favor by the people of Pennsylvania. It will probably have the effect of considerably increasing the commercial importance of Philadelphia. and will also relieve the market and enable the great mining and carrying companies to employ more fully their facilities, and to earn larger aggregate profits. We do not believe, however, that such a trade would be permanent, nor that it would be of benefit to the country. Anthracite coal can only be considered in the light of a na tional luxury, since the regions in which it is found are comparatively limited, and the supply will doubtless be exhausted long before our other coal fields are fully developed. The deposits of anthracite are very insignificant when compared with the area of the soft coal fields, and the time must come when its use will be confined to the household. While it is not probable that anything like an anthracite famine will be experienced by this generation, the time when the field will be exhausted is not a matter difficult of computation. The home consumption is increasing in an exceedingly rapid ratio, and in the future will be still more rapid. As a fuel for the household it has no equal; for manufacturing and steam purposes it is by no means equal to many other kinds. Un der these circumstances, the interest of the nation is to keep this valuable fuel for home consumption. A foreign demand will one of these days have to be supplied at the expense of reducing home consumption. In this matter it will not answer to look only at present time and our imme diate wants, because in this thing a small beginning is likely to become before many generations are past a very serious national evil. We cannot, however, expect that a corporation with a diluted capital, an enormous debt and a large annual interest and dividend account to settle, will look at this question from any but a selfish standpoint. If they can make a present profit, the future may take care of itself.

### The Additional Awards.

We give below a selection from the official list of "Additional Awards" of the names of exhibitors showing articles of interest to our reeders. The "Motives" have not yet reached We hope to have them in time for our next issue :

Group 1.

George W. Gordon, Boston, Glass Sand, Hampton, Cutter & Sons, Woodbridge, N. J., J. Kolnigsburg, Huntingdon, Pa., Coke Oven. Mahoning Valley Cen. Association, Youngs town, Coals, Iron Ores and Pig Iron.

Hanging Rock Iron Region, Portsmouth and Ironton, Pig Iron.

Hanging Rock Iron Region, Portsmouth and Ironton, Pig Iron.
Virginia District, Iron Ores.
Huntingdon and Broad Top Coal and Iron Region, Coals, Coke, Iron Ores, etc State of Tennessee, Iron Ores.
State of Indiana, Coals, Iron Ores, Iron, Malleable Castings.
New York Section, Iron Ores.
State of Maryland, Mineralogical and Geological Collection.

cal Collection.
Illinois Industrial University of Natural History, Lead Ores.
State of Missouri, Collection of Ores.
Lake Superior District, Iron Ores.
Territory of Arizona, Silver, Lead and Gold Ores.

State of Pennsylvania, Bituminous Coals. State of Pennsylvania, Semi-Bituminous Coals. State of Pennsylvania, Anthracite Coals. State of Ohio, Coals. State of Kentucky, Coals. Franklin Society, Providence,

Minerals and Geological Specimens from

Rhode Island. State of Iowa, Geological Collection. Virginia Mining Bureau, Virginia, Collection

Geological Survey of New Jersey, Geological Collection.
State of Wisconsin, Collection of Minerals State of Wisconsin, Collection of Miner Rocks, etc. State of Arkansas, Mineralogical Collection

Geological Survey of Kentucky, Geologica Collection Geological Survey of Pennsylvania, Geologica Collection, etc. State of Nevada, Collection of Ores and Stam

Mill.
Territory of Montana, Silver, Lead and Gold Ores.
State of Michigan, Collection of Ores.
State of Colorado, Lead, Silver and Gold Ores.
State of Delaware, Mineralogical Collection.
State of Missouri, Iron Ore.
Lebigh Valley Region, Pig Iron.
State of Kansas, Geological Collection.
Smithsonian Institute, Ores and Minerals.
Marietta, Pittsburgh and Cleveland Railroad,
Coals and Iron Ores.
Selma, Rome and Dalton Railroad, Coals and
Iron Ores.

elma, Rome and Dalton Railroad, Coals an Iron Ores. Jouth and North Railroad of Alabama, Iro South and North Railroad of Alabama, Iron Ores and Geological Sections.

St. Louis, Iron Mountain and Southern Railroad, St. Louis, Collection of Ores.

Chattanooga Map Co., Chattanooga, Map of Mineral Region around Chattanooga.

State of Iowa, Coals.

State of Kentucky, Coal and Iron.

Smithsonian Institute, Collection of Ores.

State of West Virginia, Geological Collection.

Group II.

Dixon Crucible Co., Jersey City, Graphitic Cru cibles.
J. H. Garretson, Richland, Iowa, An Impact Brick Machine.
Michael Ehret, Jr., Philadelphia, Granulated Slag Roofing.

Group III.

Waggoner, Gifford & Co., Chicago, Mixed Page, Kidder & Fletcher, New York, Coal Tar Edward Coe, New Haven, Conn., Automatic Electric Gas Valve. Andrew O'Neill, Ansonia, Conn., Gas and Water

Main Connecto Thomas Rowland, Brooklyn, N. Y., Stean

Stoker. Excelsior Gas Machine Co., South Norwalk, Conn., Maxim Gas Machine. Morris, Tasker & Co., Philadelphia, Gas Works Machinery. W. Rand, Philadelphia, "The Victor Gas

Gilbert & Barker, Springfield, Mass., "Spring-

Gilbert & Barker, Springfield, Mass., "Spring-field Gas Machine."
Y. D. Townsley, Cincinnati, Gas Machine.
Improved Steiner Gas Machine Co, Philadelphia,
Portable Gas Machine.
Novelty Gas Machine Co., Baltimore, Carburetting Gas Machine.
F. S. Pease, Buffalo, N. Y., Lubricating and
Improved Machinery Oils.
Joseph H. Adam & Son, Peekskill Mfg. Co.,
New York, Sugar Mills.

Group VII. Z. Cobb & Sons, Wilmington, Del., Furnitur

and Door Springs.
J. C. Anderson, Pittsburgh, Sash Balance.
American Machine Co., Philadelphia, Wringing Machine, Fluting Machine.

Group IX.

Dornau Bros., & Co., Philadelphia, Power Car pet Loom. R. Parkhurst & Co., Newark, N. J., Burring

Group XI. Meriden Britannia Co., West Meriden, Conn. Silver-Plated Goods.

Group XIV.

Peter Carrigan, Philadelphia, Plumbing, Copper Work, Bath Tubs, Food Tins, Links, Copper Kitchen Utensils.
Providence Gas Burner Co., Providence, R. I., Gas Burners, Drop Light Sockets, etc.
Woods, Sherwood & Co., Lowell, Mass., Tinplated Wire Ware.

Woods, Sherwood & Co., Lowell, Mass., Tin-plated Wire Ware.
Cornelius & Sons, Philadelphia, Gas Fixtures.
Wilhelm & Newman, Philadelphia, Post Lan-terns, Silvered Mica Reflectors.
F. H. Lovell & Co., New York, Drummond Kerosene Burner, Centennial Chimney and Felt Wick.
Readley & Hubbard Mic.

Bradley & Hubbard Mig. Co., Gas and Oil Fix-

tures and Lamps.
scher & Pancoast Mfg. Co., New York, Gas Fixtures. F. A. Heinrichs, New York, German Student Lamps.
L. Hayward and J. M. Bruce, Boston, Vesper

C. L. Hayward and J. M. Bruce, boston, vesper Elevating Street Lamp Post. Christoph Reissner & Co., New York, "Summer Queen" Oil Cook Stove. Open Stove Ventilating Co., New York, "Fire on the Hearth" Parlor Stove. Richardson, Boynton & Co., New York, Boynton's Open Franklin "Tile" Portable Stove.

Stove.

Mrs. Charlotte H. Sterling, Gambier, Knox county, O., Dish Washing and Drying Machine, for washing and drying dishes without

the wetting of the hands or the use of a brush

or cloth of any kind.
Lalauce & Grosjean, New York, Sheet Metal Culinary Utensils, Stamped or Pressed from Iron,
Brass, Copper and Tin Plates, etc.
J. Hall Rohrman & Son, Philadelphia, Coffee,
Tea and Spice Caddies and Scales, Safe Deposit, Boxes for Banks, Security Companies,

F. Dupaignet & Huot, New York, Imperial French Cooking Range, Imperial Maracaibo Coffee and Tea Urns, Copper Ware and

Coffee and Tea Urns, Copper Ware and Cooking Utensils, etc. Ansonia Brass and Copper Co., New York, Pat-ent Spur, Brass Kettles. Charles F. Herris, Philadelphia, Adjustable El-bow for Stove or Heater. Corrugated Elbow Co., New York, Corrugated Sheet Metal Elbows, made from one piece, for stove and other piece. stove and other pipes. Iwett, Quimby & Perry, Troy, N. Y., Graphic

Missouri Valley Novelty Works, St. Joseph, Mo., Combination Kitchen Safe. Fuller, Warren & Co., Troy, N. Y., Stoves, Fur-

Puller, Warren & Co., 1roy, N. 1., Stoves, Furnaces, Ranges, etc.

B. F. Sturtevant, Boston, Machine for drying lumber, brick, wood, cotton, cloth, hossery, corn and other grains, leather, glue, tobacco, etc., and for heating and ventilating public building meaning and ventilating public buildings, manufactories, etc

John Grossius, Cincinnati, Patent School House Ventilating Stove. House Ventilating Stove.

The Odorless Excavating Apparatus Co., Baltimore, Machine for the emptying of vaults, sinks, cesspools, etc., without offence.

Charles Burnham & Co., Philadelphia, Gas Cooking Stoves, Reflecting Parlor Gas Stoves, Gas Heating Stoves.

Cooper, Jones & Cadbury, Philadelphia, Water Closets, Compression Faucets, Pumps, Fountain Jets, Water Ganges, etc.

J. D. Cook, Toledo, O., Water Tank for public water supply, Auxiliary Stand Pipe, for the

service, to obviate the use of portable engines. David W. Law, Gloucester, Mass., Ice Crusher. Thomas S. Dixon & Sons, Philadelphia, Grates, Gas Logs.
Bissell & Co., Pittsburgh, Isaac Dupps' Patent

Bissell & Co., Pittsburgh, Isaac Dupps' Patent Railroad Car Heaters.

I. Reynolds & Son, Philadelphia, Shaking and Clinker Cutting or Grinding Grate, for house warming furnace or apparatus.

Bissell & Co., Pittsburgh, Pittsburgh Elevated Oven Cooking Range.

Bissell & Co., Pittsburgh, Peerless Raúlating Shaking Grate.

Henry C. Meyer & Co., New York, The Fuller Patent Faucet.

Patent Faucet.
ohnson, Black & Co., Erie, Erie county, Pa.
Radiant Home Base Burning Stoves, Radian Home Furnace. Dr. David B. Sturgeon, Toledo, O., America

Dr. David B. Sturgeon, Toledo, O., American Depurating Bath. Swett, Quimby & Perry, Troy, N. Y., Empire Heating Range. Hitchcock Lamp Company, Watertown, Jeffer-son county, N. Y., Mechanical Lamp. Geo. Wagner, Washington, D. C., Ventilator. J. W. Bartlett, New York, Improved Street

Globe Gas Light Co., Philadelphia, Self Gas Globe Gas Light Co., Philadelphia, Self Gas Making Street Lamps. H. H. Doty, Norfolk, Va., Kerosene Burners. Edward Miller, Meriden, Conn., Lamps and Lamp Trimmings. Mitchell, Vance & Co., New York, Gas Fixtures and Ecclesiastical Ware. Walton Bros., New York, Noiseless Open Base Steam Radiator and Ship's Galley.

Walton Bros., New York, Noiseless Open Base Steam Radiator and Ship's Galley. Walton Bros., New York, Lanterns. Mt. Washington Glass Works, New Bedford, Mass., Crystal Chandeliers, Opal Lights, Globes and Shades, etc. Smith Bros., New Bedford, Mass., Glass Shades and Globes.
Magee Furnace Co., Boston, Stoves, Ranges and Furnaces.

and Gloves,
Magee Furnace Co., Boston, Stoves, Ranges
and Furnaces.
Tatham & Bros., New York, Tin-lined Iron
Pipe, Tin-lined Lead Pipe, Block Tin Pipe.
Wm. Page & Co., Boston, Railway and Steamship Lamps.

A. Wight, Philadelphia, Ventilator and Dust

Trap.

Baker, Arnold & Co., Philadelphia, Gas Fixtures.
J. C. Bates, Philadelphia, Ventilators.
August Wilhelm, Philadelphia, Ceiling Re

flector. Protective Ventilator Co., New York, Venti-Cleveland Non-Explosive Lamp Co., Cleveland

Cleveland Non-Explosive Lamp Co., Cleveland, O., General Kerosene Goods, Metaliic Safety Lamps and Nickel-plating.

Barstow Stove Company, Rhode Island, Crystal Fire Place Heater.
Otto Zwietusch, Milwaukee, Wis., Crystal Faucet, Drought Apparatus.

Dreer, Smith & Dreer, Philadelphia, Berford Gas Smilght Apparatus. Gas Sunlight Apparatus.

American Reflector Co., Philadelphia, Metallic Reflector. Richardson, Boynton & Co., New York, Im-

Richardson, Boynton & Co., New York, Improved Gas-tight Furnace.
Richardson, Boynton & Co., New York, Baltimore Fireplace Heater.
C. A. Blessing, Philadelphia, Copper Bath Tubs.
C. A. Blessing, Philadelphia, Combination Cock for Bath Tub. Jonathan Miller, Meriden, Conn., Coffee, Tea and Extract Press.

and Extract Press.
Job Bartlett & Sons, Philadelphia, Wrought
Iron Warm Air Furnace.
C. W. Packer, Philadelphia, Ice Cream Freez.r.
Reading Hardware Co., Reading, Apple Parer.
Job Bartlett & Sons, Philadelphis, London
Kitcheners and Charcoal Boilers.
Dr. G. W. H. Calver, Columbus, N. J., House
hold Ironing Machine.
A. G. Meyers, New York, Field's Flush Tank.
Alex. M. Leslie, New York, Zero Refrigerators.
F. J. Walker, M. D., Philadelphia, Water Filter.

Group XV.

Stafford Mfg. Co., New York, Stencils and Key Rings. W. J. Flanigm & Co., Philadelphia, Samson E. Mills & Co., Philadelphia, Brace Bits, Saw E. Mills & Co., Philadelphia, Brace Bits, Saw Peds, Strew Drivers. American File Co., Philadelphia, Machine-made Files and Hand-cut Rasps. F. H. Evans, New York, Expansion Bolts. Alex. Krumbhaar, Philadelphia, Files and Rasp.

Group XVI.

Laffin and Rand Powder Co., New York, Mag-netic Electric Blasting Machine. Laffin and Rand Powder Co., New York, Fric-tional Electric Blasting Machines.

Group XVII.

Benezet & Co., Philadelphia, Carriage Springs

Group XIX. The Delaware Iron Ship Builders, Chester, Pa Model of Steamships.

John Englis & Sor, Brooklyn, N. Y., Models, and Calculations of Steamships.

The Rider Life Raft Co., New York, Two Life Rafts. Thos. F. Royland, Green Point, L. I., Iron Buoy. Frank G. Fowler, Bridgeport, Conn., Steam Steering Propeller.

Group XX.

A. Gawthrup & Son, Wilmington, Del., Glass Models of Hydraulic Rams. Union Brass Works, Powell & Co., Cincinnati, Lubricators, Valves, etc. McNab & Harlin Mfg. Co., Cocks, Whistles, Water Gauges.
R. T. Houghton, New York, Boiler and Tube Compound for Removing and Preventing Scale.

Seale.
Rider, Wooster & Co., Walden, N. Y., Compression Engines, Operating with Valves, using Compressed and Hested Air.
George Draper & Son, Hopedale, Mass., Self-Lybricating Rog. Lubricating Box. Christopher Brown & Co., Fitchburg, Mass., Steam Engine.

John T. Shuster, Philadelphia, Felting for Boil-

John T. Shuster, Philadelphia, Felting for Boilers and Steam Pipes.
C. M. O'Hara & Co., Boston, Felting for Covering Steam Boilers and Pipes.
Isaac U. Forbes, Philadelphia, Steam Engine Valves and Gear.
John McConn, Philadelphia, Hot Water Boiler and Steam Radiator for Heating Purposes.
J. B. Hoyt, New York, Farnace for the Combustion of Bituminous Coal.
E. A. L. Roberts, Titusville, Pa., Steam Engine.

bustion of Bituminous Coal.
E. A. L. Roberts, Titusville, Pa., Steam Engine.
Knickerbocker Ice Co., Philadelphia, Ice Tools,
Elevators and Ice Machinery.
Gould Mfg. Co., Seneca Falls, N. Y., Hand Fire
Engine.
B. S. Nichols & Co., Burlington, Vt., Vertical
Steam Fire Engine. Steam Fire Engine.

New York Belting and Packing Co., New York,
Rubber Belting, Packing, Hose, etc.

Hubbard & Aller, Brooklyn, N. Y., Steam

Pumps. Colwell Lead Co., New York, Lead Pipe, Block Tin and Tin-lined Lead Pipe. Henry Q. Hawley, Albany, N. Y., Water Motors. Crane Brothers, Chicago, Model of Hydraulic

Crane Brothers, Chicago, Model of Hydraulic Elevator. Isaac Hyneman, Philadelphia, Water Excavator. W. D. Andrews & Bro., New York, Centrifugal Pumps, Sluthour & Mintzer, Philadelphia, Force and Bilge Hand Pumps,

Engines, Putnam Machine Co., Fitchburg, Mass., Steam Engine and Turbine Wheel.

Josiah Gates & Sons, Lowell, Mass., Leather
Hose and Leather Belting. Steam Pumps, Elevator

Crane Bro

Bros., Chicago, Hose Nozzles R. D. Wo R. D. Wood & Co., Philadelphia, Fire Hydrants, Cast Iron Pipes, Valves. Norwalk Iron Works Co., South Norwalk, Cone., Non-expansive Steam Pumps, Steam

Conn., Non-expansive Steam Pumps, Steam Engines. La France Mfg. Co., Elmira, N. Y., Rotary Steam Fire Engine Pumps and Engines. W. D. Andrews, New York, Boiler and Ele-

Thomas Shaw, Philadelphia, Hydraulic Valves,

Tost Pumps and Gauges.

B. Fitts, Worcester, Mass., Steam Whistle for use during the Exhibition.

Lathrop Anti-Friction Co., New York, Composition for Bearings.

Wickersham & Brothers, Philadzlphia, Oil Cups and Feeders. and Feeders. William Ruoff, Philadelphia, Double and Single

William Ruoff, Philadelphia, Double and Single Geared Jack Screws. Leng & Ogden, New York, Siphon Pumps, Lever and Cam Gate Valves. M. C. Isaacs & Co., Chicago, Steel Wire Brushes. Hilborne L. Rosevelt, New York, Hydraulic Automatic Organ Blower. U. S. Metallic Spring Packing Co., Boston, Stean Pressure Packing.

Steam Pressure Packing. erome Wheelock, Worcester, Mass., Auto Jerome matic Cut-off Engine. Boston Hydraulic Mortar Co., Boston, Hydraul

ic Automatic Organ Blower. erome Wheelock, Worcester, Mass., Steam Engine Piston Packing. rane Bros., Westfield, Mass., Japanese Paper Belting. ames Haworth, Philadelphia, Hydrant Tur-

Pusey, Jones & Co., Wilmington, Del., Expanding Pulleys and Temper Cut-off for Steam Engines. Hertzel Herman, Philadelphia, Speed Indicator. Schutte & Goehring, Philadelphia, Pumps. A. & F. Brown, New York, Hangers and Pul-

leys. Neafle & Levy, Philadelphia, Steam Engines. H. Vogt, Brooklyn, Boiler. Jackson Richards, Philadelphia, Piston Pack-

Jackson Richards, Philadelphia, Piston Packing.
Richard Dudgeen, New York, Rotary Engine.
Williamson Bross., Philadelphia, Hoisting Engine with Spur and Frictional Gearng.
B. J. Barr, Philadelphia, Steam Trap.
Canfield Mfg. Co., Philadelphia, Packing.
A. & F. Brown, New York, Engine and Pulleys.
Charles Zoope, New York, Grate Bars.
E. H. Asheroft, Boston, Steam and Vacuum Gauges, Safety Valves.
Baxter Steam Engine Co., New York, Steam Engines.

Eugines. eorge B. Brayton, Philadelphia, Hydro-Carbon J. C. Hoadley Co., Lawrence, Mass., Portable

Steam Eugines.
J. H. Mitchell, Philadelphia, Vertical Steam En gines. eorge W. Harrold, Rochester, N. Y., Auto matic Steam Trap. Roland Rhett, Baltimore, Spring Motor for Sewing Machines.

Jostah A. Osgood, Boston, Metallic Spring

Josian A. Osgood, Boston, Metallic Spring Packing. Levi F. Smith, Philadelphia, Boiler Try Cocks. Henry S. Lansdell & John S. Long, New York, Lever and Cam Valves for Water, Steam, etc. L. Katzenstein & Co., New York, Metallic Pack-ing for Piston Rods and Valves' Stems. Ames Iron Works, Oswego, N. Y., Portable Steam Engine.

Steam Engine.

John E. Lindlaw, New York, Fire Escape.

Love, Grove & Co., Philadelphia, Vertical Tubular Boilers.

Thos. Mills & Bro., Philadelphia, Vertical Engine. gine and Ice Cream Freezer Combined.
Craig & Brevoort, New York, Condenser for
Steam Pumps.

James L. Jackson, New York, Improvements

in Making Patterns and Castings.
F. D. Chase, Boston, Ventilating Deck Iron.
Philadelphia Hydraulic Works, Philadelphia Steam Pump. Iathias Pennypacker, Philadelphia, Hand Mathias

Mathias Penuypacker, Philadelphia, Hand Hoisting Machine.
Aultman, Miller & Co., Akron, Ohio, Self-registering Dynamometer.
Stauley G. Flagg & Co., Philadelphia, Fittings for Gas, Steam and Water Pipes.
Fred. Lunkenheimer, Cincinnati, Lubricators, Oil Cups, Steam Valves, etc.
Wm. Powell & Co., Cincinnati, Valves and Lubricators

E. A. Street, New York, Portable Fire Pump C. R. Patterson, Pittston, Pa., Suction Alfred Gomersall, Philadelphia, Engines and

Pumps.
Merril & Keitzer, Baltimore, Gauge Cocks. Group XXI.

Cornell University Machine Shop, Ithaca, N. Y. Foot Lathe, Gauges and other Tools. Group XXIII.

William Earl, Nashua, N. H., Machine for Shearing Sheep.
Thomas Patent Smoothing Harrow Co., Geneva, N. Y., Harrow. Blymer Mfg. Co., Cincinnati, Fixed Horizontal Blymer Mig. Co., Cincinnati, Fixed Horizontal Engine for Sugar Machinery. Fairbanks & Ewing, Philadelphia, Cheese Fac-tory and other Scales. R. H. Allen & Co., New York, Phillips Spiral Coin Husker. Wheeler & Milick Co., Albany, N. Y., Straw Preserving Rye Thresher. Randolph Bros., N. Y., Ditching and Draining Machine.

Machine.
W. L. Boyer & Bro., Philadelphia, Combined W. L. Boyer & Bro., Philadelphia, Combined Metal Mill and Bolting Screen.
Osborne Mfg. Co., New York, Bird Cages.
Hendriks & Co., Bird Cages.
Murphy & Broom, Philadelphia, Wire Cages and Wire Work, etc.
White Mountain Freezing Co., Laconia, N. H., Freezing Machine For Ice Cream.
Iron Milk Can Co., New York, Milk Cans.
T. Hyde Fisher, Chicago. Refrigerators.
E. B. Smith, Albany, N. Y., Dry Air Refrigerator.

G. Blatchley, Philadelphia, Ice Cream R. H. Allen & Co., New York, One Row Corn

Drui. lement & Dunbar, Philadelphia, Cedar Ware, Churns and Ice Cream Freezers. H. Allen & Co., New York, Victor Brick Making Machine. Chadborn & Coldwell, Mfg. Co., Newburgh, N. Y., Lawn Mowers. Jewell & Stevens, New York, Jewell's Self-Opening Cans.

Group XXV. Frederick Meyer, Newark, N. J., Weighing

Scales.
Price, Lisseth & Co., Philadelphia, Weighing Buffalo Scale Co., Buffalo, N. Y., Weighing Scales.

John C. Dell, Philadelphia, Scales and Weights. Becker & Sons, New York, Balances of Pre-

Sluthour & Mintzer, Philadelphia, Hand Fire Brandon Mfg. Co., Brandon, Vt., Weighing Scales. E. & T. Fairbanks & Co., St. Johnsbury, Vt., Scales and Weighing Beams. Union Water Meter Co., Worcester, Mass., Wa-

ter Meters. ales, Jenks & Sons, Pawtucket, R. I., Water Meters Meters. amuel Archbold, Philadelphia, the Marsland Water Meter. V. E. Desper & Co., Worcester, Mass., Water

ter. . Maclay, New York, Nicolas & Chamon's Water Meter. National Meter Co., New York, the Gem Water Meter Osterheld & Eickemeyer, Yonkers, N. Y., Dy-

namometer.
Thomas Shaw, Philadelphia, Pressure Gauge.
Prof. Robert H. Thurston, Hoboken, N. J.
Machine for Testing Strength of Materials.
Gustav Blanck, New York, Parallel Ruling Ma Stanley Rule and Level Co., New Britain, Conn.,

Rules, Levels and other Tools.
Eagle Square Mfg. Co., S. Shaftesbury, Vt.,
Steel Squares and Rules.
E. R. McKean, Washington, D. C., Gauging In-

Group XXVI.

Penn Geological Survey Commission, Geological Map in Relief (Pennsylvania).
Penn Geological Survey Commission, Geological Charts, Relievos and Profiles (Pennsylvania).

vania). Richard P. Morgan, Bloomington, Ili., Elevated

Steam Railway.

Detroit Bridge and Iron Works, Detroit, Mich.,
Bridge over Missouri River at St. Joseph. Mo.
F. C. Lowthrop, Lowthrop & Henderson, Trenton, N. J., Plans of Iron Bridges and Turn ton, N. J., Flans of Tables.
Tables.
Ten. Wm. Socy Smith, Maywood, Cook county,
en. Wm. Socy Smith, Maywood, Cook county,
Page 1.

Gen. Wm. Socy Smith, Maywood, Cook county, Ill., Drawings of Pneumatic Caisson. Garry Iron Roofing Co., Cleveland, Iron Roofstone Bridge Co., Philadelphia, Illinois and

St. Louis, Steel Arched Bridge.

8. Hoisting and Conveying Machine Co.,
New York, Hoisting and Conveying Machines New York, Holsing and Conveying Machines or Apparatus.

The Gunpowder Pile Drivier Co., Philadelphia, Gunpowder Pile Driving Machine.

Keystone Bridge Company, Philadelphia, Im-provements in Pivot or Swing Bridge, Riveted Columns.

Group XXVIII.

Lobdell Car Wheel Co., Wilmington, Del., Cars and Locomotives.

Group XXIX. John L. Mason, Camden, N. J., Mason's Patent Glass Fruit Jar of 1872. Ella Haller, New York, Fruit Jars.

Centennial Notes.

VULCANIZED FIBER COMPANY. Wilmington, Del. This company make a very interesting display of their vulcanized fiber in Machinery Hall, Section D 9, Col. 65. Vulcanized fiber is an entirely new article of manufacture, consisting of vegetable fiber reduced to a pulp, and then subjected to powerful chemi to a pulp, and then subjected to powerful chemical treatment, whereby the original properties of the fiber are entirely changed, and a new and valuable material is produced, which is already lorgely utilized, and enters into many branches of mechanical industry. The process and the different articles made are secured by numerous patents, but the goods are sold at less prices than competing articles, while they are said to be of a superior quality to anything of a similar nature ever offered. They are made either hard or flexible, varying in their properties to some extent, according to the properties to some extent, according to the uses for which they are intended. The hard fiber is somewhat like horn in its consistency, is fiber is somewhat like horn in its consistency, is very tough and strong, has remarkable durability under friction, and remains permanently elastic under all ordinary conditions of weather or temperature. The flexible fiber closely resembles English sole leather in appearance, and is largely used as a substitute therefor in mechanical appliances, but is much closer grained and far more durable, and being of uniform quality and thickness throughout cuts without waste. It is used largely in place of rubber for packing. It is extensively used in the manufacture of washers for axles, compression cock washers for plumbers' use, car of rubber for packing. It is extensively used in the manufacture of washers for axles, compression cock washers for plumbers' use, car box washers, fish-bolt washers, journal bearings, bushings, &c., and for the following reasons is said to be superior to leather or rubber: "Is perice ly insoluble in bot or co'd water, oil, naphtha, petroleum or alcohol, and is but slightly affected by most of the acids, and is remarkably adapted for plumbers' washers, for the following reasons: 1st. It will not absorb oil or any other fluid, except water; and the only effect that either hot or cold water has upon it, is to cause it to expand and become elastic like leather. 2d. It will not stick to anything, and, therefore, never becomes fast in a faucet like rubber. 3d. These washers outwear three or four leather or rubber ones, and always make a tight joint. 4th. They are cheaper than any others, and being made to order of any size, always fit well and are readily applied. They

always fit well and are readily applied. ecially useful as flexible car hox washers are specially useful as flexible car box washers, for dust guards, oil box covers, &c. Heretofore leather has been used for this purpose, but soon becomes rotten and limp with the oil, rendering them useless, while it is claimed that the vulcanized fiber washers are not effected by oil, grease or petroleum; do not cut the axles, as grit does not adhere to them, and will outwar several leather ones. They are now in wear several leather ones. They are now in use on many leading railroads, and are said to give perfect satisfaction. It has long been a desideratum with railroad officials been a desideratum w.th railroad officials to provide a permanently clastic compensating cushion at the joints of the rails to absorb the tremendous shocks and vibrations to which the tracks are subjected, and thereby reduce the destructive wear of both rails and rolling stock, and render the roadway comparatively smooth and noiseless. Various devices of rubber, wood, steel, etc., have been tested with only moderate success even when new; but all lacked the essential element of durability, until the introduction of vulcanized fiber, which is not injured by exposure to the weather, or affected by extreme beat or cold, and these simple and inexpensive washers are said to accomplish the desired result. These sheets are made 42 nn. wide by 5 ft. 6 in. long, and of any desired thickness from ½200 cold, and the self-size usually cut into half sheets 21 in, wide by 5 ft. 6 in. long for convenience of shipment. These goods are used for carriage washers, gaskets, water reacting alternative sitting stream. 6 in, long for convenience of shipment. These goods are used for carriage washers, gaskets, water packing, plumbers' tittings, car box washers (or "dust guards"), oil box covers, and a great variety of uses. While not in all cases a substitute for leather or rubber in mechanical uses, they are in many positions far superior to either of these articles, and as experience determines the places to which they are specially adapted, they supersede all competing goods for such uses. An immense trade is already done with axie makers, carriage factories and livery stables for carriage ohn C. Dell, Philadelphia, Scales and Weights. Seeker & Sons, New York, Balances of Precision.

Itenry Troemmer, Philadelphia, Scales and Balances.

Henry Troemmer, Philadelphia, Scales and Weights.

Henry Troemmer, Philadelphia, Scales and Balances.

Henry Troemmer, Philadelphia, Scales and Balances.

Henry Troemmer, Philadelphia, Scales and Balances.

Henry Troemmer, Philadelphia, Balances.

Henry Troemmer

# The Iron Age.

New York, Thursday, October 12, 1876.

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EUROPEAN AGENCY.

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City subscribers will confer a favor upon the Publish y reporting at this office any definquency on 'he part reriers in delivering The Iron Age; also, the loss ay papers for which the carriers are responsible. Our triers are instructed to deliver papers only to person uthorized to receive them, and not to throw them; all ways or upon stairs; and it is our desire and inte-ion to enforce this rule in every instance.

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### The Centennial Medals

Thus far the work of the judges appointed by the Centennial Commission to make awards of premiums to exhibitors has been regarded with general dissatisfaction. The impression prevails that the medals have been given without proper discrimination. Those who do not receive them are, naturally, disappointed and dissatisfied. Those who did, feel, as the rule, that the honor was conferred so liberally that it has but little value. We fear this objection is well taken. To the general public it would seem as if the principal care of the judges had been to avoid invidious distinctions between exhibitors, and to disappoint no one's expectations or wishes. We find on looking over the official list before us, that, in one group, as many as seven medals have been awarded for walnuts, six for filberts and several (we have not time to count them) for chestnuts. It would seem to the average mind that if any premiums were to be awarded for such things at all, one would suffice. Giving medals by the handful in this way does, we admit, seem like making honors rather cheap, and when the general list swells up high among the thousands, the impression is strength-

Of course, we understand that the medal is only a token that an award has been soon be running. This seems to indicate out. In December, 1875, the total cost per journals, we find the displayed cards of

has to show the general public, which will document, however brief. The receipt of something of superior excellence, value or merely an explanation. In this case the that a report has been made, and unless he must have made a poor showing indeed if he had not.

The plan of presenting medals of small intrinsic worth, accompanied by a report, is, we think, a good one. We also like the that the real value of the award shall be think, however, that while reports, diplomas, &c., might have been given to all exhibitors of articles worthy of official notice, only those should have received medals whose exhibits possessed peculiar exals is a matter of no consequence. They silver, but the idea of giving the same medal to the Corliss engine and a hat full them. of chestnuts, to Herr Krupp and the ingenious lady who made the whistle out of the skin of a pig's tail, is, to say the least, ludicrous. Men who have spent thousands of dollars, and made such displays as the world has never seen before, do not like to receive the same medal as is awarded to the venerable old ladies who have sent bed quilts of variegated patchwork. The thing is incongruous, and nothing which the judges may have to say in their reports will make it much better.

If medals were to be given by the wagon load, would it not have been better to have presented one to each exhibitor? It would then have been understood that they conveyed no honor, and were merely distributed as mementos of the Centennial to those who had contributed to its interest and success by becoming exhibitors. The reports would then have been the real awards, and in these the good qualities of the successful exhibits would have been recorded. There would then have been nothing to complain of. As it is, however, the medal business is likely to bring the whole work of the judges into contempt. Every one familiar with the exhibits in any class or department, who will look over the list of awards, will see that some, pernaps many, medals have been bestowed upon undeserving exhibits. The list is ull of surprises and disappointments. There has evidently been discrimination, but how or on what plan we cannot imagine. Under the circumstances, we think the public verdict will be that, while it is no great credit to have received a medal, it is no discredit not to have received one. What happened at Vienna, where honors were so easily won that many exhibitors declined them, should have taught our commissioners the folly of trying to please everybody.

### The Outlook for Pig Iron.

The blast furnace table, published in our issue of September 28th, makes a showing of the anthracite furnaces in eastern and middle Pennsylvania that is furnaces in the sections named, but 54, or between 38 and 34 per cent., were in blast per cent. more than the average for the country, but the anthracite furnaces of Pennsylvania, with the proximity to the fuel used, should make a much better showing than this, and the indications are that by the time of our next report a larger per cent. will be in blast. The reports we are daily receiving from the eastern part of Pennsylvania leave no doubt that in that section, at least, there is a decided belief that the reaction has come. As will be seen by our "Business Items," ore banks that have been idle are being reopened, and those that have not suspended are showing signs of increased activity. Collieries are resuming work full force and full time, and blast furnaces are being put into blast. The action of the Thomas Iron Company in this particular is significant. This company has generally the reputation of running its furnaces in accordance with the state of the trade, blowing when the demand seemed to warrant, and blowing out when it would not. For months they have been running light, but now they have six out ton for brown hematite, and 50 cents a ton of their eight anthracite furnaces in blast, for magnetite. The item of labor includes and it is reported that the other two will also repairs and the cost of blowing in and made, and that the real award (# value is two things: one, that pig iron can be made ton was \$20.32, made up as follows: Coal, 17 prominent firms advertising American

the written report of the judges. This, at the present figures at a profit; and the \$5.99; ore, \$10.12; limestone, 64 cents; machinery and tools, and such specialties however, does not make the matter much other, that the stocks in hand in the better. The medal is what the exhibitor Eastern part of the country, and the prospective consumption, are such as to not take the time or the trouble to read a justify something of an increase in production. It must be remembered, howsuch a medal at an international exhibition ever, as we show below, that the Thomas has hitherto been supposed to indicate that Iron Company have exceptional facilities the exhibitor receiving it had shown for manufacturing iron cheaply. It will also be noticed that Mr.G. Dawson Coleman beauty. The accompanying report was has blown in one of his furnaces, that the ore mines of E. & G. Brooke and of Seyfert medal itself means nothing more than McManus & Co. are being reopened, which would indicate that the Bushong the contents, or "motive" of such report furnaces will not long be the only ones in is known, the medal is practically without blast in Reading. Eckert & Brother are significance. To say that one received a contemplating blowing, the Crane Iron Lehigh Valley iron can be made at a small bronze medal at Philadelphia will be to Company blew in another furnace on the cause a smile, and to suggest the idea that 28th of last month, and at many points fires have been started in the furnaces and prepartions for blasts have been made.

The reduction in the price of ore has had a stimulating effect on the iron industry. Just what the reduction has been idea of making the medals uniform, so it is difficult to say. Some of the furnaces bought coal at the first sales after found in the accompanying report. We the combination broke, and got it lower than they could buy it now, while the present price to furnaces seems to be in doubt, and perhaps it really varies, owing to the keen competition and the irritation consequent on the breaking of the comcellence. The intrinsic value of the med- bination. We give below extracts from two letters bearing on this point. They

> The following is from a Lehigh Valley furnace: "We have only had a reduction of 25 cents per ton in price of coal and 15 per cwt. in freights. Our average consumption of anthracite coal from January 1st to July 1st was 1 ton 12 cwt. per ton of iron. Before the break in price coal cost at our works \$3:28, now \$2.94."

From the Schuylkill Valley: "Prior to the break in the coal combination the price of lump and steamboat coal was \$2.85 at Schuylkill Haven, the shipping point, To furnaces and rolling mills it was 25 cents per ton less, or \$2.60. From the shipping point to Reading the freight was 80 cents per ton, making the coal there \$3.40. Now the coal is \$2 and freight 80 cents-\$2.80 at Reading. I understand some parties are buying at \$1.75 at Schuylkill Haven."

An analysis of these figures will show considerable of a variation in the price of fuel per ton of pig, as well as in the percentage of reduction in cost of iron caused by the reduction in price of coal. Take the figures from the Lehigh Valley. The coal per ton of iron is 1.6 tons, which would cost, at the old price, \$5.24 per ton of pig, and at the new \$4.71, a reduction of 10 per cent. In the Schuylkill Valley, assuming the amount of fuel to be the same, viz., 1.6 tons to a ton of pig, at the old price the fuel would be \$5.44 per ton of iron, and at the new price \$4.48, a reduction of 171/2 per cent. But if we take the price of coal at Schuylkill Haven at \$1.75, the cost of fuel per ton of pig would be \$4.08, or a reduction of 25 per cent. On the subject of this reduction the Bulletin of the American Iron and Steel Associa tion has, in its issue of Sept. 20th, the following: "We have taken pains to inquire carefully into the reduction in the cost of pig iron caused by the break in the coal combination, and learn that in the 'Lehigh district it will not average 50 cents to the ton, and in the Schuylkill "district it will not average \$1 a ton."

This would give very nearly the figures anything but satisfactory. Of the 161 we have, ours being 58 cents in the Lehigh Valley, and, in one case, in the Schuylkill Valley 96 cents, and in the other \$1.21. Conon the 1st of September. This is 2 or 3 sidering the difficulty in arriving at the exact prices paid and the amount of coal consumed, as well as the further fact that there will probably be a sharp competition for the furnace trade, we do not think the latter figure will be too great an estimate of the saving in the Schuylkill Valley, and we would be inclined to increase the amount over 53 cents in the Lehigh Valley.

In regard to the present cost of making pig we have the figures of the Thomas Iron Co., for December, 1875. The works are well known as the largest and among the best conducted in America. The company mines its own ores; works low grade ores (average of five years, 41.6 per cent.); has short transportation for fuel and ores (average 30 to 35 miles); smelts with anthracite coal; uses large furnace, "with "all modern improvements," a very hot blast (900° Fah.) and high pressure; has produced on a long average, 33 per cent. of No. 1 X, 28 per cent. No. 2 X, 31 per cent, No. 2, and 8 per cent. No. 3. The cost of the ore includes not only the mining expenses, but also a royalty of 25 cents per a total reduction in the cost of \$2.54, making the total cost per ton \$17.78. These reductions certainly do not appear excessive. The item of labor is even at the reduction nearly double what it is costing the best furnaces in the West, and the ore taken as the yield-\$3.73 per ton.

shows that at one furnace at least in the erally true; indeed, we think it probable that | lonial markets remained, and to the deit is not. While there are many anthracite furnaces in Pennsylvania that can either rected. When protection had borne its make at a profit or not at a loss, there are many that cannot run and clear them- ing and diversifying our industries and deselves. In this struggle for existence these must succumb. As we have already suggested, the "survival of the fittest" holds in sidering their excellent quality and finish, the evolution of the furnace industry, and admitted of their exportation to foreign the "fittest" is not the one away from ore, coal and a market-that is, it is the well ers was directed to the British colonies as located furnace. The poorly located ones inviting fields for the display of enterprise. might make money if iron would reach The early ventures in these directions were the figures of several years ago. There attended with encouraging results, and bewas no struggle for existence then, but forethe Sheffield manufacturers were aware from such a condition of the market the of what was going on, our axes, hatchmight as well be of bronze as of gold or are both from persons whose names would intelligent iron-master will ask to be delivets, saws, hammers, cutting tools of all carry the greatest weight did we publish ered in litanies that shall be full both of kinds, and many other of our manufacspirit and understanding:

### Bessemer Steel.

The condition of the Bessemer industry is such that we may be pardoned for again referring to it. While it is a fact that some large orders have been placed both East and West, it is also true that steel them, and the result must be either that some understanding must be reached bethe demand is so much better as to afford says: better prices. Of course, there are other alternatives, such as cheapening the cost or waiting until the mills that are ready to take orders at low prices are filled up; but relief from these measures is slow in coming, and we speak now of immediate relief. At the Edgar Thomson Works just at this time there is, fortunately, a necessity for repairs, and they will shut down next week for several weeks We Tearn also that the Bessemer manufacturers have a meeting in New York this week to endeavor to reach some understanding, but we are not at present advised of the result.

How great the decline has been will be more readily seen when it is remembered that in March, 1868, steel rails sold at \$74 per ton, at works, and that within a few days they have been sold in the East at \$50, delivered at Amboy, or about \$48 at the mill. In the West they have sold at \$48, at the works, one-half cash and onehalf six months. Each order was for 5000 tons for the Pacific Road. A year ago they were selling at \$66 to \$68, and iron rails were selling at \$46.

The cause of this decline appears to be mainly an over supply, but this need not necessarily have sent them so low. The Bessemer works are so few that it need not be a very serious matter to so regulate production as to prevent rails from going to ruinous prices. We believe an attempt was made in this direction about a year ago, but it was unsuccessful. If an intelligent and earnest effort is now made, there is no reason why it may not succeed.

### English Protection Against American Manufactures.

The following significant dispatch was cabled from London under date of Octo-

The Sheffield Telegraph to-day publishes the following: "In consequence of the injury to Sheffield trade by America's heavy protective duties, representations have been made to Earl Carnarvon, Secretary for the Colonies, suggesting that heavy import duties be imposed in retaliation on American produce, both in England and her colonies. To these representations Lord Carnarvos replied on Friday that, "as will be seen on reflection, the proposal is not one be seen on reflection, the proposal is not one which her majesty's government could enter-

This does not mean exactly what it may seem to mean on first reading. The idea of "retaliation" does not enter into the reasons why the English manufacturers desire protection. It is simply a movement inspired by the lustinct of self-preservation. They are feeling the effects of American competition at home and abroad to an extent which fills them with serious forebodings of the future. They may not be ruined by it, but they are already cripof one of the leading British epgineering

labor, \$3.56. Assuming the cost of fuel at as American saws, axes, tailors' shears, present at this furnace to be that given &c., are largely sold by resident agents in above in the letter from the Lehigh, viz., the principal cities of Great Britain. This \$4.71, and the reduction in the cost of ore is annoying, but it is not probable that and labor as 10 per cent. we would have | Sheffleld manufacturers have any fear of being driven out of their own home markets by American products. Not so, however, in the British colonies. These are the real battle ground of competition. During the past few years American goods have steadily gained in favor in the British would still average-41 per cent. being colonial markets, and are rapidly and surely displacing English hardware. The If the above is approximately correct, it loss of the American market which followed the imposition of the tariff in 1861 was a severe blow to the prosperity of the profit. It is possible that this is not gen- leading Sheffield industries; but the covelopment of these every energy was dilegitimate fruit in this country, in extendveloping our skill and resources, and we began to make goods at prices which, conmarkets, the attention of our manufacturtures of iron and steel had gained a foothold in the colonial markets from which no pressure of competition could dislodge them. The effects of this enterprise were first felt in the falling off in orders from Canada and the maritime provinces of the Dominion. This was followed by a falling off in orders from Australia and New Zealand. In these markets the best trade ralls have at last reached a price at which calls for American goods, which are preit appears almost impossible to produce ferred because they are lighter, of better shape and finish and more "handy." In an article on the subject of American comtween the manufacturers as to price, or petition with English edge tools, published some mills will be compelled to stop until a few months ago, the Birmingham Peat

English edge tool makers in particular arefully aware of the success with which certain of their business rivals in America have hustled them in many of our home and foreign markets. So large, however, is the demand at prezent for good edge tools of almost every description, that there are few edge tool firms in the United Kingsom who have not got plenty of orders upon their books. The English article is not, therefore, out of use, but there is a perceptible increase in the favor in which handy and thoroughly excellent tools are held, both at home and abroad; and this is being encouraged by the growing facilities for manipulating steel, both shear and cast. Sensible of this, certain American firms are pushing their opportunity. Hence it comes about that American forks and shovels and axes are to be had wherever edge tools are offered in this country. But it would seem that the Americans believe that they can compete with us much more successfully by having branch establishments to manufacture their specialities in this country, rather than by shipping their products from the other side. \* \* If American edge tool makets should begin to produce here goods that are already running English makers hard, then it is to be inferred that their example will be followed by other transattantic hardware manufacturers. If, in such an event, the English firms will keep as well employed as they now are, is another matter. lish firms will keep as well employed as they now are, is another matter.

Of our competition with English hardware in the colonies, the Ironmonger lately said:

We have, from time to time, drawn attention We have, from time to time, drawn attention to the success with which hardwares manufactured in the United States have competed with some of the British firms in certain foreign markets hitherto supplied almost exclusively from this side, at the same time that United States products have been finding their way into our own country. The reports to hand from the different hardware districts still show that there is little or no revival in the demand for iron and hardware products required in Canada. iron and hardware products required in Canada Thither it is well known the United States manufacturers continue to send the goods make at rates much under those wanted by make at rates much under those wanted by the English manufacturers. But this is not all. Some of the manufactured goods sent across the Lakes into the Dominion are said to be more handy than the English patterns. Some time ago we reported that the United States iron and hardware manufacturers were pushing their advantage in Australia and New Zealand. In those markets, likewise, American enterprise is still disagreepily apparent. The week their advantage in Austrolia and New Zealand. In those murkets, hkewise, American enterprise is still disagreeably apparent. The worst of it is that not a few of the American goods are declared, as to quality, to surpass our own. As to the Autipodean markets, all that we have here said is borne out by a communication which has been received by a firm of Birmingham merchants from their agent in Melbourne. He writes as follows: "You will notice our indent runs more on American ironmongery than formerly. Their goods are far superior to English made, and latterly they have been much cheaper. There is no comparison in the profitathey by us, and they give universal satisfaction. Small wares, locks, tools, &c., indeed, all sorts of American made goods, are now being sold in the market; and when once used, seen, or sold, the user or buyer will never again look at English made articles of the same class."

These two quotations, which guardedly

These two quotations, which guardedly and reluctantly admit facts which were carefully concealed until they became matters of common talk in trade circles, show what is the motive which actuates the Sheffield manufacturers in seeking to secure the imposition of a tariff on American goods brought into Great Britain and her territories. They want "protection." It would be humiliating to confers it, after all they have said about the folly and pled by it. In looking over a recent issue wickedness of our tariff policy, so they put it on the ground of retaliation. "The 'American government has done us vast 'injury," say they, " by protecting Ameri"can manufacturers until they have met "the wants of their own market and are "reaching after ours. Let us retaliate by

"a ta" ff for our own protection. The manufacturers of Sheffield are not the only ones in Great Britain who are beginning to feel that a little protection just now would be a good thing for British industry. The paper makers, the sugar refiners, the cotton manufacturers and many others are clamoring for protection, and appeals to the Home Office for some form of protection against foreign competition are matters of almost daily occurrence. It is not probable that the British government will take any action in the matter until forced to it by pressure of public opinion. The "traditional policy" of free trade will not be abandoned so long as the classes which now govern the country continue in power. It is quite certain that the people of this country will never trouble themselves in the matter, and that we shall not seek to influence either legislation or public opinion on the subject. They will best promote our interests by adhering to the free trade idea, and we shall neither send money, tracts nor missionaries to convert them to our own way of thinking. We would suggest, however, that if any of our discomfited and unhappy Sheffield competitors should decide to follow the examples of the Sandersons, and come here to regain the trade they have lost, they will receive a hospitable welcome and find better opportunities for the investment of capital than are now offered in the manufacturing districts of England.

The proposal of the Reading Railroad Company to attempt the exportation of anthracite coal to South America and other countries now largely supplied by England, is regarded with much favor by the people of Pennsylvania. It will probably have the effect of considerably increasing the commercial importance of Philadelphia, and will also relieve the market and enable the great mining and carrying companies to employ more fully their facilities, and to earn larger aggregate profits. We do not believe, however, that such a trade would be permanent, nor that it would be of benefit to the country. Anthracite coal can only be considered in the light of a national luxury, since the regions in which it is found are comparatively limited, and the supply will doubtless be exhausted long before our other coal fields are fully developed. The deposits of anthracite are very insignificant when compared with the area of the soft coal fields, and the time must come when its use will be confined to the household. While it is not probable that anything like an anthracite famine will be experienced by this generation, the time when the field will be exhausted is not a matter difficult of computation. The home consumption is increasing in an exceedingly rapid ratio, and in the future will be still more rapid. As a fuel for the household it has no equal; for manufacturing and steam purposes it is by no means equal to many other kinds. Under these circumstances, the interest of the nation is to keep this valuable fuel for home consumption. A foreign demand will one of these days have to be supplied at the expense of reducing home consumption. In this matter it will not answer to look only at present time and our immediate wants, because in this thing a small beginning is likely to become before many beginning is likely to become before many generations are past a very serious national evil. We cannot, however, expect that a corporation with a diluted capital, an enormous debt and a large annual interest enormous debt and a large are sufficiently as a constant of the control of the cont and dividend account to settle, will look at this question from any but a selfish standpoint. If they can make a present profit, the future may take care of itself.

### The Additional Awards.

We give below a selection from the official list of "Additional Awards" of the names of exhibitors showing articles of interest to our The "Motives" have not yet reached us. We hope to have them in time for our next issue:

Group 1.

George W. Gordon, Boston, Glass Sand. Hampton, Cutter & Sons, Woodbridge, N. J.,

Clays.

J. Kolnigsburg, Huntingdon, Pa., Coke Oven.

Mahoning Valley Cen. Association, Youngatown, Coals, Iron Ores and Pig Iron.

Hanging Rock Iron Region, Portsmouth and Pig Iron.

Virginia District, Iron Ores. Huntingdon and Broad Top Coal and Iron Region, Coals, Coke, Iron Ores, etc State of Tennessee, Iron Ores.

State of Ienticasec, fron Orea, Iron Malle-able Castings. New York Section, Iron Orea. State of Marylaud, Mineralogical and Geologi-

cal Collection.

Illinois Industrial University of Natural His-

tory, Lead Ores. State of Missouri, Collection of Ores. Lake Superior District, Iron Ores. Territory of Arizona, Silver, Lead and Gold

Ores.
State of Pennsylvania, Blituminous Coals.
State of Pennsylvania, Semi-Blituminous Coals.
State of Pennsylvania, Anthracite Coals.
State of Ohio, Coals.
State of Kentucky, Coals.
Providence Franklin Society, Providence,

Minerals and Geological Specimens from State of Iowa, Geological Collection. Virginia Mining Bureau, Virginia, Collection of

Collection. State of Wisconsin, Collection of Minerals,

State of Arkansas, Mineralogical Collection. cical Survey of Kentucky, Geological eological Survey of Pennsylvania, Geological

Collection, etc.
tate of Nevada, Collection of Ores and Stamp
Mill. Territory of Montana, Silver, Lead and Gold

Territory of Montana, Silver, Lead and Gold Ores.
State of Michigan, Collection of Ores.
State of Colorado, Lead, Silver and Gold Ores.
State of Delaware, Mineralogical Collection.
State of Missouri, Iron Ore.
Lehigh Valley Regnon, Pig Iron.
State of Kansas, Geological Collection.
Smithsonian Institute, Ores and Minerals.
Marietta, Pittsburgh and Cleveland Railroad,
Coals and Iron Ores.

Coals and Iron Ores.
Selma, Rome and Dalton Railroad, Coals and South and North Railroad of Alabama, Iro

South and North Railroad of Alabama, Iron Ores and Geological Sections.

St. Louis, Iron Mountain and Southern Railroad, St. Louis, Collection of Ores.

Chattanooga Map Co., Chattanooga, Map of Mineral Region around Chattanooga.

State of Iowa, Coals.

State of Kentucky, Coal and Irou. Swithsonian Institute, Collection of Ores. State of West Virginia, Geological Collection

Group II.

Dixon Crucible Co., Jersey City, Graphitic Cru J. H. Garretson, Richland, Iowa, An Impac Brick Machine. Michael Ehret, Jr., Philadelphia, Granulated

Slag Roofing

Page, Kidder & Fletcher, New York, Coal Tar

Products.
Edward Coe, New Haven, Conn., Automatic Electric Gas Valve.
Andrew O'Neill, Ansonia, Conn., Gas and Water Main Connector.
Thomas Rowland, Brooklyn, N. Y., Steam Stoker. Excelsior Gas Machine Co., South Norwalk,

Conn., Maxim Gas Machine. Morris, Tasker & Co., Philadelphia, Gas Works Machinery. W. Rand, Philadelphia, "The Victor Gas

Maconne. "
Glibert & Barker, Springfield, Mass., "Springfield Gas Machine."
Y. D. Townsley, Cincinnati, Gas Machine.
Improved Steiner Gas Machine Co, Philadelphia, Portable Gas Machine. Novelty Gas Machine Co., Baltimore, Carburet

The Cas Machine Co., Datamors, Carburetting Gas Machine.

F. S. Pease, Buffalo, N. Y., Lubricating and Improved Machinery Oils.
Joseph H. Adam & Son, Peekskill Mfg. Co., New York, Sugar Mills.

Group VII.

Group IX.

Dornan Bros., & Co., Philadelphia, Power Carpet Loom. R. Parkhurst & Co., Newark, N. J., Burring

Group XI. Meriden Britannia Co., West Meriden, Conn. Silver-Plated Goods.

Group XIV.

Peter Carrigan, Philadelphia, Plumbing, Copper Work, Bath Tubs, Food Tins, Links, per Work, Bath Tubs, Food Tins, Links, Copper Kitchen Utensils. Providence Gas Burner Co., Providence, R. I., Gas Burners, Drop Light Sockets, etc. Woods, Sherwood & Co., Lowell, Mass., Tin-

Gas Burners, Die G. Co., Lowell, Blace, Plated Wire Ware.
Cornelius & Sons, Philadelphia, Gas Fixtures.
Wilhelm & Newman, Philadelphia, Post Lanterns, Silvered Mica Reflectors.

II Lovell & Co., New York, Drummond H. Lovell & Co., New York, Drummond Kerosene Burner, Centennial Chimney and

Kerosene Bushaman Felt Wick. radley & Hubbard Mfg. Co., Gas and Oil Fixtures and Lamps. Archer & Pancoast Mfg. Co., New York, Gas Fixtures.
F. A. Heinrichs, New York, German Student Lamps.
L. Hayward and J. M. Bruce, Boston, Vesper

Boynton's Open Franklin "Tile" Portable

Richardson, Boynton & Co., New York, Boynton's Open Franklin "Tile" Portable Stove.

Mrs. Charlotte H. Sterling, Gambier, Knox Acounty, O., Dish Washing and Drying Machine, for washing and drying dishes without the wetting of the hands or the use of a brush or cloth of any kind.

Lalauce & Grosjean, New York, Sheet Metal Culinary Utensils, Stamped or Pressed from Iron, Brass, Copper and Tin Plates, etc.

J. Hall Rohrman & Son, Philadelphia, Coffee, Tea and Spics Caddies and Scales, Safe Deposit, Boxes for Banks, Security Companies, etc.

L. F. Dupaignet & Huot, New York, Imperial French Cooking Range, Imperial Maracaibo Coffee and Tea Urns, Copper Ware and Cooking Utensils, etc.

Ansonia Brass and Copper Co., New York, Patent Spur, Brass Kettles.

Charles F. Herris, Philadelphia, Adjustable Elbow for Stove or Heater.

bow for Stove or Heater. Corrugated Elbow Co., New York, Corrugated Sheet Metal Elbows, made from one piece, for stove and other pipes.
wett, Quimby & Perry, Troy, N. Y., Graphic Parlor Stove.

Parlor Stove.

Missouri Valley Novelty Works, St. Joseph,
Mo., Combination Kitchen Safe.

Fuller, Warren & Co., Troy, N. Y., Stoves, Fur-

naces, Ranges, etc.

B. F. Sturtevant, Boston, Machine for drying lumber, brick, wool, cotton, cloth, hosiery, corn and other grains, leather, glue, tobacco, etc., and for heating and ventilating public

etc., and for heating and ventilating public buildings, manufactories, etc.

John Grossius, Cincinnati, Patent School House Ventilating Stove.

The Odorless Excavating Apparatus Co., Baltimore, Machine for the emptying of vaults, stuks, ceespools, etc., without offence.

Charles Buruham & Co., Philadelphia, Gas Cooking Stoves, Reflecting Parlor Gas Stoves, Gas Heating Stoves. The Odorless Excavating Apparatus Co., Baltimore, Machine for the emptying of vaults, sinks, cesspools, etc., without offence.
Charles Burnham & Co., Philadelphia, Gas Cooking Stoves, Reflecting Parlor Gas Stoves, Gas Heating Stoves.
Cooper, Jones & Cadbury, Philadelphia, Water Closets, Compression Faucets, Pumps, Fountain Jets, Water Gauges, etc.
J. D. Cook, Toledo, O, Water Tank for public water supply, Auxiliary Stand Pipe, for the

gines. David W. Law, Gloucester, Mass., Ice Crusher. Thomas S. Dixon & Sons, Philadelphia, Grates, Ores.

Geological Survey of New Jersey, Geological Bissell & Co., Pittsburgh, Isaac Dupps' Patent

Bissell & Co., Pittsburgh, Isaac Dupps' Patent Railroad Car Heaters.

J. Reynolds & Son, Philadelphia, Shaking and Clinker Cutting or Grinding Grate, for house warming furnace or apparatus.

Bissell & Co., Pittsburgh, Pittsburgh Elevated Oven Cooking Range.

Bissell & Co., Pittsburgh, Peerless Radiating Shaking Grate.

Henry C. Meyer & Co., New York, The Fuller

Henry C. Meyer & Co., New York, The Fuller Patent Faucet. Junson, Black & Co., Erie, Erie county, Pa., Radiant Home Base Burning Stoves, Radiant

Home Furnace.
Dr. David B. Sturgeon, Toledo, O., American Depurating Bath.
Swett, Quimby & Perry, Troy, N. Y., Empire Heating Range.
Hitchcock Lamp Company, Watertown, Jefferson county, N. Y., Mechanical Lamp.
Geo. Wagner, Washington, D. C., Ventilator.
J. W. Bartlett, New York, Improved Street Lamps.

Globe Gas Light Co., Philadelphia, Self Gas Making Street Lamps.
H. H. Doty, Norfolk, Va., Kerosene Burners.
Edward Miller, Meriden, Conn., Lamps and Lamp Trimmings.
Mitchell, Vauce & Co., New York, Gas Fixtures and Ecclesiastical Ware.
Walton Bros., New York, Noiseless Open Base Steam Radiator and Ship's Galley.
Walton Bros., New York, Lanterns.
Mt. Washington Glass Works, New Bedford, Mass., Crystal Chandeliers, Opal Lights, Globes and Shades, etc.
Smith Bros., New Bedford, Mass., Glass Shades and Globes.
Magce Furnace Co., Boston, Stoves, Ranges and Furnaces. Gas Light Co., Philadelphia, Self Gas

Magee Furnace and Furnaces. Tatham & Bros., New York, Tin-lined Iron Pipe, Tin-lined Lead Pipe, Block Tin Pipe. Wm. Page & Co., Boston, Railway and Steam-

Siag Rooting.

Group 111.

Waggoner, Gifford & Co., Chicago, Mixed

Will. rage & Co., Boston, Railway and Schuller Ship Lemps.

S. A. Wight, Philadelphia, Ventilator and Dust Trap.

Baker, Arnold & Co., Philadelphia, Gas Fix-

tures.
J. C. Bates, Philadelphia, Ventilators.
August Wilhelm, Philadelphia, Ceiling Re-Protective Ventilator Co., New York, Ventilators.

Cleveland Non-Explosive Lamp Co., Cleveland, leveland Non-Explosive Lamp Co., Cleveland, O., Guneral Kerosene Goods, Metaliic Safety Lamps and Nickel-plating. arstow Stove Company, Rhode Island, Crystal Fire Place Heater. htto Zwietusch, Milwaukee, Wis., Crystal Fau-Fire Place Hea Otto Zwietusch, cet, Drought Apparatus. Dreer, Smith & Dreer, Philadelphia, Berford Gas Sunlight Apparatus. American Reflector Co., Philadelphia, Metallic

Reflector.
Richardson, Boynton & Co., New York, Im-Richardson, Boynton & Co., New York, Improved Gas-tight Furnace.
Richardson, Boynton & Co., New York, Baltimore Fireplace Heater.
C. A. Blessing, Philadelphia, Copper Bath Tubs.
C. A. Blessing, Philadelphia, Combination Cock

for Bath Tub. Jonathan Miller, Meriden, Conn., Coffee, Tea

Jonathan Miller, Meriden, Conn., Coffee, Tea and Extract Press.
Job Bartlett & Sons, Philadelphia, Wrought Iron Warm Air Furnace.
C. W. Packer, Philadelphia, Ice Cream Freez.r. Reading Hardware Co., Reading, Apple Parer.
Job Bartlett & Sons, Philadelphia, London Kitcheners and Charcoal Boilers.
Dr. G. W. H. Calver, Columbus, N. J., House hold Ironing Machine.
A. G. Meyers, New York, Field's Flush Tank.
Alex. M. Leslie, New York, Zero Refrigerators.
F. J. Walker, M. D., Philadelphia, Water Filter.

Group XV. Stafford Mfg. Co., New York, Stencils and Key Rings. W. J. Flanig in & Co., Philadelphia, Samson Wrenches.
E. Mills & Co., Philadelphia, Brace Bits, Saw Pads, Screw Drivers.
American File Co., Philadelphia, Machine-made Files and Hand-cut Rasps.
F. H. Evans, New York, Expansion Bolts.
Alex. Krumbhaar, Philadelphia, Files and Rasp.

Group XVI.

Laffin and Rand Powder Co., New York, Mag-netic Electric Blasting Machine. Laffin and Rand Powder Co., New York, Fric-tional Electric Blasting Machines.

Group XVII. Benezet & Co., Philadelphia, Carriage Springs.

Group XIX. The Delaware Iron Ship Builders, Chester, Pa., Model of Steamships. John Englis & Sor, Brooklyn, N. Y., Models,

and Calculations of Steamships. The Rider Life Raft Co., New York, Two Life Rafts.
Thos. F. Royland, Green Point, L. l., Iron Buoy.
Frank G. Fowler, Bridgeport, Conn., Steam
Steering Propeller.

Group XX.

A. Gawthrup & Son, Wilmington, Del., Glass Models of Hydraulic Rams. Union Brass Works, Powell & Co., Cincinnati, Lubricators, Valves, etc.

McNab & Harlin Mfg. Co., New York, Valves,
Cocks, Whistles, Water Gauges.

R. T. Houghton, New York, Boiler and Tube
Compound for Removing and Preventing
Scale.

Rider, Wooster & Co., Walden, N. Y., Com-

Scale.
Rider, Wooster & Co., Walden, N. Y., Compression Engines, Operating with Valves, using Compressed and Heeted Air.
George Draper & Son, Hopedale, Mass., Self-Lubricating Box.
Christopher Brown & Co., Fitchburg, Mass.,

Christopher Brown & Co., Fitchburg, Mass., Steam Englue.
John T. Shuster, Philadelphia, Felting for Boilers and Steam Pipes.
C. M. O'Hara & Co., Boston, Felting for Covering Steam Boilers and Pipes.
Isaac U. Forbes, Philadelphia, Steam Engine Valves and Gear.
John McConn, Philadelphia, Hot Water Boiler and Steam Badiator for Heating Purposes.
J. B. Hoyt, New York, Furnace for the Combustion of Bituminous Coal.

tion of Bituminous Coal.

bustion of Bituminous Coal.
E. A. L. Roberts, Titusville, Pa., Steam Engine.
Knickerbocker Ice Co., Philadelphia, Ice Tools,
Elevators and Ice Machinery.
Gould Mfg. Co., Seneca Falls, N. Y., Hand Fire Engine.
S. Nichols & Co., Burlington, Vt., Vertical

Steam Fire Engine.
New York Belting and Packing Co., New York,
Rubber Belting, Packing, Hose, etc.
Hubbard & Aller, Brooklyn, N. Y., Steam

mas Shaw, Philadelphia, Hydraulic Valves Test Pumps and Gauges.

B. Fitts, Worcester, Mass., Steam Whistle for use during the Exhibition.

Lathrop Anti-Friction Co., New York, Compo-

sition for Bearings. Wickersham & Brothers, Philadelphia, Oil Cups and Feeders. William Ruoff, Philadelphia, Double and Single

Geared Jack Screws.
Leng & Ogden, New York, Siphon Pumps,
Lever and Cam Gate Valves.
M. C. Isaacs & Co., Chicago, Steel Wire

Brushes. Hilborne L. Rosevelt, New York, Hydraulic Automatic Organ Blower.
U. S. Metallic Spring Packing Co., Boston, Steam Pressure Packing.
Jerome Wheelock, Worcester, Mass., Automatic Cut-off Engine. Boston Hydraulic Mortar Co., Boston, Hydraul

ic Automatic Organ Blower.
crome Wheelock, Worcester, Mass., Steam
Engine Piston Packing.
rane Bros., Westfield, Mass., Japanese Paper Crane Bros., Westfield, Mass., Japanese Paper Belting. James Haworth, Philadelphia, Hydrant Tur-

Pusey, Jones & Co., Wilmington, Del., Expanding Pulleys and Temper Cut-off for Steam Engines. Hertzel Herman, Philadelphia, Speed Indicator. Schutte & Goebring, Philadelphia, Pumps. A. & F. Brown, New York, Hangers and Pul-

Neafic & Levy, Philadelphia, Steam Engines. H. Vogt, Brooklyn, Boiler. Jackson Richards, Philadelphia, Piston Pack-

ing.
Richard Dudgeon, New York, Rotary Engine.
Richard Dudgeon, New York, Rotary Engine.
Williamson Bros., Philadelphia, Hoisting Engine with Spur and Frictional Gearing.
R. J. Barr, Philadelphia, Steam Trap.
Canfield Mfg. Co., Philadelphia, Packing.
A. & F. Brown, New York, Engine and Pulleys.
Charles Zoope, New York, Grate Bars.
E. H. Asheroft, Boston, Steam and Vacuum
Gauges, Safety Valves.
Baxter Steam Engine Co., New York, Steam
Engines.

George B. Brayton, Philadelphia, Hydro-Carbon J. C. Hoadley Co., Lawrence, Mass., Portable

Steam Eugines.

J. H. Mitchell, Philadelphia, Vertical Steam Engines. George W. Harrold, Rochester, N. Y., Automatic Steam Trap.
Roland Rhett, Baltimore, Spring Motor for Sewing Machines.

Josiah A. Osgood, Boston, Metallic Spring

Josiah A. Osgood, Boston, Metallic Spring Packing. Levi F. Smith, Philadelphia, Boiler Try Cocks. Henry S. Lansdell & John S. Long, New York, Lever and Cam Valves for Water, Steam, etc. L. Katzenstein & Co., New York, Metallic Pack-ing for Piston Rods and Valves' Stems. Ames Iron Works, Oswego, N. Y., Portable Steam Engine. Steam Eugine. John E. Lindlaw, New York, Fire Escape

Joun E. Lindlaw, New York, Fire Escape. Love, Grove & Co., Philadelphia, Vertical Tu-bular Boilers. Thos. Milis & Bro., Philadelphia, Vertical En-gine and Ice Cream Freezer Combined. Craig & Brevoort, New York, Condenser for Steam Punyse.

Steam Pumps.

James L. Jackson, New York, Improvements in Making Patterns and Castings.

F. D. Chase, Boston, Ventilating Deck Iron.

Philadelphia Hydraulic Works, Philadelphia, Philadeiphia Hyungs Steam Pump, Mathias Pennypacker, Philadelphia, Hand Hoisting Machine. Aultman, Miller & Co., Akron, Ohio, Self-regis-

Aultman, Miller & Co., Akron, Ohio, Self-regis-tering Dynamometer. Stauley & Flagg & Co., Philadelphia, Fittings for Gas, Steam and Water Pipes. Fred. Lunkenheimer, Cincinnati, Lubricators, Oil Cups, Steam Valves, etc. Wm. Powell & Co., Cincinnati, Valves and Lu-

bricators.
A. Street, New York, Portable Fire Pump.
A. Street, New York, Partable Fire Pump. Fan. Alfred Gomersall, Philadelphia, Engines and Pumps. Merril & Keitzer, Baltimore, Gauge Cocks.

Group XXI. Cornell University Machine Shop, Ithaca, N. Y. Foot Lathe, Gauges and other Tools.

Group XXIII. William Earl, Nashua, N. H., Machine for

Shearing Sheep. Thomas Patent Smoothing Harrow Co., Geneva, . Harrow. Cu Cincinnati Fixed Horizo Engine for Sugar Machinery Engine for Sugar Macbinery.
Fairbanks & Ewing, Philadelphia, Cheese Factory and other Scales.
R. H. Allen & Co., New York, Phillips Spiral Corn Husker.
Wheeler & Milick Co., Albany, N. Y., Straw Preserving Rye Thresher.
Randolph Bros., N. Y., Ditching and Draining Machine.

Machine.

W. L. Boyer & Bro., Philadelphia, Combined Metal Mill and Bolting Screen.
Osborne Mfg. Co., New York, Bird Cages.
Hendriks & Co., Bird Cages.
Murphy & Broom, Philadelphia, Wire Cages and Wire Work, etc.
White Mountain Freezing Co., Laconia, N. H., Freezing Machine For Ice Cream.
Iron Milk Can Co., New York, Milk Cans.
T. Hyde Fisher, Chicago, Refrigerators.
E. B. Smith, Albany, N. Y., Dry Air Refrigerator.

erator. C. G. Blatchley, Philadelphia, Ice Cream Freezer.
R. H. Allen & Co., New York, One Row Corn Drull.
Clement & Dunbar, Philadelphia, Cedar Ware, Churns and Ice Cream Freezers.
R. H. Allen & Co., New York, Victor Brick
Making Machine.
Chadborn & Coldwell, Mfg. Co., Newburgh,

N. Y., Lawn Mowers.

Jewell & Stevens, New York, Jewell's Self-

Group XXV.

Frederick Meyer, Newark, N. J., Weighing in mechanical uses, they are in many positions far superior to either of these articles, and as Frederick Meyer, Newark, N. J., Weighing Scales.
Scales.
Price, Lisseth & Co., Philadelphia, Weighing Scales.
Buffalo Scale Co., Buffalo, N. Y., Weighing Scales.
Buffalo Scale Co., Buffalo, N. Y., Weighing Scales.
John C. Dell, Philadelphia, Scales and Weights.
Becker & Sons, New York, Balances of Precision.
Henry Troemmer, Philadelphia, Scales and Balances.
Riehle Bros., Philadelphia, Weighing and Testing Machines.

Sluthour & Mintzer, Philadelphia, Hand Fire Brandon Mfg. Co., Brandon, Vt., Weighing Engines.
Putnam Machine Co., Fitchburg, Mass., Steam E. & T. Fairbanks & Co., St. Johnsbury, Vt.,

Putnam Machine Co., Fitchburg, Mass., Steam Engine and Turbine Wheel. Josiah Gates & Sons, Lowell, Mass., Leather Hose and Leather Belting.
Crane Bros., Chicago, Steam Pumps, Elevator Rope, Hose Nozeles.
R. D. Wood & Co., Philadelphia, Fire Hydrants, Cast Iron Pipes, Valves.
Norwalk Iron Works Co., South Norwalk, Conn., Non-expansive Steam Pumps, Steam Engines.
La France Mfg. Co., Elmira, N. Y., Rotary Steam Fire Eugine Pumps and Engines.
W. D. Andrews, New York, Boiler and Elevator.

Meter. Osterheld & Eickemeyer, Yonkers, N. Y., Dynamometer.
Thomas Shaw, Philadelphia, Pressure Gauge.
Prof. Robert H. Thurston, Hoboken, N. J.,
Machine for Testing Strength of Materials.
Gustav Blanck, New York, Parallel Ruling Ma-

Stanley Rule and Level Co., New Britain, Conn. Rules, Levels and other Tools.

Eagle Square Mfg. Co., S. Shaftesbury, Vt.,

Steel Squares and Rules.

E. R. McKean, Washington, D. C., Gauging In-

Group, XXVI.

enn Geological Survey Commission, Geologi-cal Map in Relief (Pennsylvania). Penn Geological Survey Commission, Geological Charts, Relievos and Profiles (Pennsyl-

Richard P. Morgan, Bloomington, Ill., Elevated Schard P. Morgan, Bloomington, Ill., Elevated Steam Railway. Detroit Bridge and Iron Works, Detroit, Mich., Bridge over Missouri River at St. Joseph, Mo. C. Lowthrop, Lowthrop & Henderson, Tren-ton, N. J., Plans of Iron Bridges and Turn

Tables.

Tables.

Gen. Wm. Socy Smith, Maywood, Cook county, Ill., Drawings of Pneumatic Calason.

Garry Iron Roofing Co., Cleveland, Iron Roofing.

Keystone Bridge Co., Philadelphia, Illinois and St. Louis, Steel Arched Bridge.

U.S. Hoisting and Conveying Machine Co., New York, Hoisting and Conveying Machines or Apparatus.

or Apperatus.

The Gunpowder Pile Driver Co., Philadelphia,
Gunpowder Pile Driving Machine.

Keystone Bridge Company, Philadelphia, Improvements in Pivot or Swing Bridge, Riveted

Group XXVIII. Lobdell Car Wheel Co., Wilmington, Del., Cars

and Locomotives. Group XXIX.

John L. Masou, Camden, N. J., Masou's Patent Glass Fruit Jar of 1872. Ella Haller, New York, Fruit Jars.

Centennial Notes.

VULCANIZED FIBER COMPANY, Wilmington, Del. This company make a very interesting display of their vulcanized fiber in Machinery Hall, Section D 9, Col. 65. Vulcanized fiber is an entirely new article of manu-

nized fiber is an entirely new article of manufacture, consisting of vegetable fiber reduced to a pulp, and then subjected to powerful chemical treatment, whereby the original properties of the fiber are entirely changed, and a new and valuable material is produced, which is already largely utilized, and enters into many branches of mechanical industry. The process and the different articles made are secured by numerous patents, but the goods are sold at less prices than competing articles, while they are said to be of a superior quality to anything of a similar nature ever offered. They are made either hard or flexible, varying in their properties to some extent, according to the uses for which they are intended. The hard fiber is somewhat like horn in its consistency, is very tough and strong, has remarkable durability under friction, and remains permanently elastic under all ordinary conditions of weather or temperature. The flexible fiber closely resembles English also leather in appearance elastic under all ordinary conditions of weather or temperature. The flexible fiber closely resembles English sole leather in appearance, and is largely used as a substitute therefor in mechanical appliances, but is much closer grained and far more durable, and being of uniform quality and thickness throughout cuts without waste. It is used largely in place of rubber for packing. It is extensively used in the manufacture of washers for axies, compression cock washers for plumbers' use, car box washers, fish-bolt washers, journal bearings, bushings, &c., and for the following reasons is said to be superior to leather or rubber: "Is perice I) insoluble in hot or coid water. ber: "Is perfee ly insoluble in bot or co'd water, ber: "Is perice ly insoluble in bot or co'd water, oil, naphtna, petrolcum or alcohol, and is but slightly affected by most of the acids, and is remarkably adapted for plumbers' washers, for the following reasons: let. It will not absorb oil or any other fluid, except water; and the only effect that either hot or cold water has upon it, is to cause it to expand and become elastic like. cause it to expand and become elastic like leather. 2d. It will not stick to anything, and, therefore, never becomes fast in a faucet like rubber. 3d. These washers outwear three or ruoper. 3d. I ness washers outweat three or four leather or rubber ones, and always make a tight joint. 4th. They are cheaper than any others, and being made to order of any size, always fit well and are readily applied. They are specially useful as flexible car box washers. are specially useful as flexible car box washers, for dust guards, oil box covers, &c. Heretofore leather has been used for this purpose, but soon becomes rotten and limp with the oil, rendering them useless, while it is claimed that the vulcanized fiber washers are not effected by oil, grease or petroleum; do not cut the axles, as grit does not adhere to them, and will outwear several leather ones. They are now in use on many leading railroads, and are said to give perfect satisfaction. It has long been a desideratum with railroad officials to provide a permanently elastic compensating cushion at the joints of the rails to absorb the tremendous shocks and vibrations to sorb the tremendous shocks and vibrations to which the tracks are subjected, and thereby re-duce the destructive wear of both rails and rollduce the destructive wear of both rails and rolling stock, and render the roadway comparatively smooth and noiseless. Various devices of rubber, wood, steel, etc., have been tested with only moderate success even when new; but all lacked the essential element of durability, until the introduction of vulcanized fiber, which is not injured by exposure to the weather, or affected by extreme heat or cold, and these simple and inexpensive washers are said to accomplish the desired result. These sheets are made 42 in. wide by 5 ft. 6 in. long, and of any desired thickness from 1/12 to 1/14 in., but are made 42 in. wide by 5 ft. 6 in. long, and of any desired thickness from 1/s2 to 5/sa in., but are usually cut into half sheets 21 in. wide by 5 ft. 6 in. long for convenience of shipment. These goods are used for carriage washers, gaskets, water packing, plumbers' titings, car box washers (or "dust guards"), oil box covers, and a great variety of uses. While not in all cases a substitute for leather or rubber in mechanical uses, they are in many resistions.

### BUSINESS ITEMS.

VERMONT

It is reported that the old iron mines near Bennington are to be reopened and worked by the Messra. Burden, of Troy, N. Y.

Rutland seems at last determined to get the the project, and Governor John B. Page, who owns a controlling interest in the concern, sub- times will get easier in Newcastle shortly. scribed \$5000 to the fund. As \$30,000 of the needful \$50,000 were previously promised, and most of the officers of the company are Rutland men, the works will doubtless be removed

departments, and the government wants 90,000 the pistols is pretty certain to be given to 36,000 pounds. American manufacturers, and that the chances are in favor of the Smith & Wesson Company, at Springfield, or Colt's Works, at Hartford.

The fine point to which railroading is getting taken to Northampton by the Connecticut of this, 4 cents went to the Michigan Central, Central, leaving 3 cents to be divided between the Boston and Albany and Connecticut River, the latter getting three-fourths of a cent.

The Boston, Clinton and Fitchburg Road are laying steel rails between Fitchburg and South Framingham, and all passenger and baggage facturers in the Lehigh who are putting their cars are to have the Washburne steel wheel.

Manufacturing interests at Fitchburg are looking up. The machine shops are all running 10 hours a day.

The Weymouth Iron Company have started their mill, and intend to start the two nail factories as soon as the water is high enough.

An invention which will revolutionize the tinware trade of the country has been perfected, after some years of labor, by Henry Martyn, a young Bostonian. It consists of a series of dies by which boxes of all sizes, from the salve box to the preserved fruit and oil caus, are pressed from a single piece of tin, the corners proving a success. It was built by himself at being doubly folded in the process, and no the Novelty Works, Corry. solder being required, though the cans are perfeetly air-tight. Flared ware, as dripping pans, are also made. They are durable, very pretty, and-as some dozen a minute are manufactured -very cheap, and in these days of solder poisoning will be especially acceptable to canners of preserved meats.

The Waltham Watch Company, who have just discharged 175 hands, now require the rest to work six days a week instead of five, and at the old pay.

The Douglas Axe Company have just been awarded a government order for 1000 dozen

One of the plated jewelry manufacturers of Providence has received foreign orders to the amount of \$8000 through the Centennial Exhibition, and there is believed to be a market for plated chains in England.

MAINE.

The shovel factory of H. R. Butterfield, at Known again.

Tronton, has resigned at the latter place and is again in Pittsburgh.

CONNECTICUT. Brown & Bros., Waterbury, who have been engaged in the manufacture of copper, brass and German silver for a number of years, making these articles in the form of sheet, wire, tubing, kettles, rivets, burs, &c., have recently added to their business the manufacture of silver-plated flat ware, of which they are making a full assortment. The patterns are all new and of rich and elegant designs, all patented.

The Union Knife Company, of Naugatuck, manufacturers of pocket cutlery of all kinds, was established in 1850, and at present employ 50 hauds. The factory is 250x25 feet and three stories, and is thoroughly supplied with all needful appliances.

The company turn out about 50 dozen penknives a day.

The assignees of the Woodruff Iron Works began Wednesday, the 4th, the last payment on pices, and all the departments are now under live operation. way, some heavy castings having already been

Plume & Atwood Co., Thomaston, running eight hours per day, four days in the week. Seth Thomas Clock Company eight hours per day. The latter company are putting a tower at the end of their " Marine Shop," in which will be placed one of their Tower clocks.

NEW YORK.

700 plows, and for the spring trade will make for two weeks. 10,000. A force of 60 men is employed at present, and when the works are run up to They employ about 75 men. Their planes are their full capacity about 50 plows per day can standard. be made, beside extras.

Island, are devoted to refining dross sweepings which will give employment to six new hands. of pewter, Britanuia metal, refuse from tin works and the like. Manufacturers are finding lurgical skill, with fluxes and suitable apmittee waited on the directors, but got no paratus. Among the products of Mr. Binns' satisfaction. A quarrel ensued, and the comworks are soft lead, type metals, quicksliver, mittee were informed that they were meddling

zinc, tin and its alloys, etc. The capacity of with business not their own. The creditors the works is 10 tons per day

PENNSYLVANIA. The Newcastle Courant says: The old mill, Etna, was put in operation on Monday last, 000, and this seems to be a fight for posand we understand is to run double turn. As soon as enough iron is made the nail factory is Howe Scale Works, of Brandon. A recent to be started. A rumor that the works of Reis, large meeting appointed a committee to further Brown & Berger are to resume operations soon was in circulation the other night. If this is true

The Virginia (Nevada) Enterprise says of the Savage cable: The new steel wire cable, just received by the Savage Mining Company, is one of the finest ever brought to the Comstock lode. It was made by the Hazard Manufactur-MASSACHUSETTS. ing Company, of Wilkesbarre, and is 2½
Germany has recently decided to arm her inches in diameter, and 4000 feet long. cavairy and artillerymen with revolvers instead It is not a tapering rope, but is of uniform of the single-barrel pistols now in use in those diameter throughout. It is round, and is composed of 343 steel wires, so completely twisted revolvers to be completed within two years. and laid in together as to form almost a solid It is understood that the contract for making mass of iron. The weight of the cable is

The Thomas Iron Company have put Ridge, and on Monday last lighted No. 2 at Hokendauqua, making six furnaces reduced is illustrated in a bit of freight just in blast out of ten belonging to the corporation. It is announced that all their an-River Road. It was a 10 pound easting sent thracite furnaces, eight in number, will be put ducing regions. The Vigo Iron Co. use Brazil from Chicago, at a total expense of 16 cents; in blast. This will require a goodly number of men, and although wages are extremely low, 4 to the Great Western and 5 to the New York vet men are satisfied to work in order to keep the wolf from the door.

The Lehigh and Wilkesbarre Coal Company havs resumed work, with a full force on full time, at all their collieries. Large sales of coal have been made by the company to iron manufurnaces into blast, and the daily shipments on the New Jersey Central Railroad aggregate 15,000 tons. About 15,000 men are employed by the company, and the resumption of mining, together with a recent payment to the of rock weighing about 370 tons a distance men, has brightened business in the Wyoming of 30 feet. The Kennebec is the chief ice region.

The fire was started in the Lebanon Furnace No. 1, Hon. G. Dawson Coleman's, on Thursday morning, the 5th.

H. F. King, of Corry, has in operation a combined road engine and steam-power for thresh ing or other purposes. It gives promise of

The New Castle Guardian says it is rumored that a change in the firm of Reis, Brown & Berger, of that city, is about to take place. The rolling mill and other works of this firm are estimated to be worth about \$1,500,000.

PITTSBURGH AND VICINITY. The Lucy Furnace is relined and fire was put in to dry it out on the 29th ult. The furnace will be blown in early in November.

The Shoenberger Furnace in blast is doing ost excelient work, making 342 tons a week. The furnace is only 13 feet bosh by 62 feet high. The grade of iron is very open, the difficulty being to keep it down to mill iron.

The Edgar Thomson Steel Works will shut down Saturday for repairs, and wili probably not resume operations before December 1st. They have been running very regular for sometime past, making about 191 tons per day.

Mr. James Skelding, formerly manager at the Lucy, and more recently at the Alice Furnace,

The mill of H. Lloyd, Son & Co., which shut down some two weeks since, is again in operation.

All of the window glass factories in this city are idle on account of the strike of the tender boys. We believe that all Western factories are in the same condition except the one at Ottawa, Ills., which has yielded and is in operation.

One cent and three-quarters per bushel of eighty pounds is being paid to the miners in the fourth pool on the Monongahela River, and three or four works are in operation at that price.

The miners at Kiuney & Pasmore's Coal Works, opposite McKeesport, are to go to work in a few days at two cents per bushel. WEST VIRGINIA.

The hinge factory, Wheeling, has been idle for a few days.

Cartwright, McCurdy & Co.'s two mills, the the preferred claims against the concern. These Youngstown Rolling Mill and Brown, Bonnell works have started up again under new aus- & Co.'s Works, at Youngstown, are now in ac-

> The Himrod Furnace is again running on Bessemer steel .- Exchange. Is it possible that Kelley's idea after all is going to succeed, and steel be made in the blast furnace crucible?

> The Milburn Wagon Works, at Toledo, were burned on the 29th ult. Loss, \$350,000; insurance, \$135,000.

Hotehkiss & Gaylord, bolt manufacturers, Cleveland, are experiencing a gratifying re-The Robinson Chilled Plow Company, of vival of trade. They have received orders in the Syracuse, sold and delivered between 600 and first two days of this month to keep them busy

Sandusky Tool Co. report business fair.

The Akron Knife Works are putting in ad-Binns' Smelling Works, Williamsburgh, Long ditional machinery, made in Fitchburg, Mass., WISCONSIN.

The Chicago Inter Ocean of Oct. 5th, says: it to their advantage to send their dross to a A secret meeting of the creditors of the Milrefining establishment to have it reconverted waukee Iron Company was held here to-day. into the metal or alloy which they are using They resolved that the company could make rather than to attempt to do the work them- an arrangement by which all debts could be selves. It has been found by comparison that paid without proceedings in bankruptcy, and this course saves from 20 to 40 per cent, over appointed a committee to so inform the directhe old way, where each manufacturer attempted tors. They also appointed a committee to "sweat out" the metal from the dross, throw the company into bankruptcy if the di-This saving is effected by having proper metal- rectors attempt to avoid their debts. The com-

then appointed a committee to investigate the accounts of the company, and adjourned to the 17th inst. The property is worth about \$4,000,-

### TENNESSEE.

The Roane Iron Company are running both pulls double turn, and are pressed with orders. They are now puddling for the new Schofield merchant mill, using the Chattanooga Iron Company's iron exclusively.

### MICHIGAN.

The Escanaba Furnace, which before the panie ould not have been bought for half a million dollars, was sold at auction on the 21st ult., to A. B. Meeker, of Chicago, for \$105,000. This includes the furnace plant, 30,000 acres of woodland, all kilns, tenements and personal property of the company. The furnace will soon be put in blast.

### INDIANA.

Stack No. 1 of the Vigo Iron Co.'s furnaces at Terre Haute, will go into blast this week or next, as the Wabash Iron Co.'s bar blast Nos. 7 and 8 furnaces at Lock mill stock of pig iron is nearly exhausted. The two corporations comprise the same stockholders, and they find it is still cheaper in this section to make iron than to buy it, although the reverse is the case in many other iron problock coal exclusively.

> In the Kennebec River an engineering work for the improvement of navigation is going on, which is somewhat similar, though upon smaller scale, than that at Hell Gate, "Dry Rock," near Richmond, is being removed under the direction of General Thom. In the neigh borhood of this rock there is a very strong tidal current. In one blast, recently, there were four holes drilled 17 feet deep, and filled with vulcan powder. The mine was exploded by means of a battery, and the discharge removed a mass mart of the country, and a heavy trade in the summer months passes up and down that

### Special Notices.

### American Manufactures in England.

A merchant of long experience in Birmingham England, will devote time to the sale of, and to the procuring of orders in the English market for Ameri-can manufactures. For particulars apply to the Office of The Iron Age, 10 Warren St., N. Y

### To the Hardware Manufacturers.

Last year, at the meeting of the Western Hardware Association, held at Cincinnati, a few manufactur-ers and their representatives were present and oranized a temporary "Manufacturers' Association." The "Western Hardware Association" was in vited to attend a banquet, which was accepted, and on that occasion a banquet was tendered the members of the Association by the manufacturers, to take place at their next annual meeting, and this meeting will be held in St. Louis, Mo., October 17, 1876.

As this meeting promises to be very important. and one in which the manufacturers are directly in erested, it is hoped that every manufacturer of Hardware and kindred lines will be represented, and it is desired, as far as possible, that the leading or representative member of each firm be present. All who intend going, write at once to "Committee Manufacturers' Association," Lindell Hotel, St. Louis, giving their names, also the name of their firm. This will faciatate the object in view. Per

"No. 1 Business Chance." - For Sale No. 1 Business Chance. 72—For Sale—rare iness chance.—I offer my entire stock of Hard-c, Tools and House Furnishing Goods for sale rately Stock on hand, about \$3290. The stand ood and rent low. Best of reasons given for sell-For further information address. G. A. NOLTING, 116 Broad St., Richmond, Va.

### DISCOUNT LISTS.

Hinges (Stanley Works' list... 10 % to 50 % each, '5c., and Butts, { Union Mfg. Co.'s...... 10 % to 60 % "75c., crew, Bolt, Frie. Hinge and Butt List...-Contains all the Cortes of the Contains all the Cortes of t Dayton & Lamberson, 97 Chambers St., N. Y

NEW YORK, Sept. 30th, 1876.

The style of our firm will be hereafter

Mecoy & co.

Mr. Irving VanWart retires, and Mr. Isaac Jenks Jr., becomes a partner from this date.

VANWART & McCOY.

### SPECIAL NOTICE MEN'S SINGLE GUNS. addition to the former line of A. Simon's, Liege,

SILESIAN SHEET ZINC, Imported by LOUIS WINDMULLER & ROELKER, 20 Reade Street, N. Y.

Specialties of Wrought, Cast, or Sheet Iron or Brass, Made to order in a SUPERIOR MANNER, AT LOW PRICES, by the CORRUGATED METAL CO., East Berlin, Conn

WANTED.—A first-class business man familiar with machinery and manufacturing, capable of handling large bodies of men, desires a responsible position. References satisfactory. Address, IRON AND STEEL,

Care of P. O. Box 813, Bridgeport, Conn.

### VENTILATING & STEAM HEATING. A thoroughly competent engineer, with extensive

experience in the above line, desires employment. Office of The Iron Age, 10 Warren St., N. Y.

### Special Notices.

### TO LET,

### A Light, Handsome Office.

Possession Immediately. HERMANN BOKER & CO., 101 Duane Street, N. Y.

### NOTICE! POND'S TOOLS

The undersigned has assumed the Personal Property, including accounts, finished and unfinished Machinery, good will &c., connected with the manufacture of Machinery's Tools as conducted by Mr. Lucius W. Pond since 1847, and will continue the said business at the old stand, cor. Union and Exchange Sts., Worcester, Mass., under the name of DAVID W. POND, Successor to Lucius W. Pond. CARD.—Having assumed the business mentioned above, I solicit Inquiry and Patronage, with guarantee that present standard of Workmanship, and quality of Machinery shall be maintained. A large quantity of New AND SECOND-HAND TOOLS, ALL STYLES AND SIZES, For Sale at Low Prices. Send for list of second-hand tools Store at 98 Liberty St., New York, will be discontinued from Feb. 1, 1876, and all sales made from manufactory. Respectfully,

DAVID W. POND, Respectfully, Successor to Lucius W. Pond

Proposals will be received up to December 1st 876, by the Trustees of the New York and Brooklyn Bridge, at their office 21 Water St , Brooklyn, N. Y., for the manufacture and delivery of 3400 net tons of No. 8 Galvanized Steel Cable Wire, to be used in the construction of the main cables of the East River Suspension Bridge.

Printed specifications containing full information will be furnished upon application to this office. W. A. ROEBLING, Chief Engineer.

### ALLIS, BULLARD & CO. (Limited), Railway Supplies, Machinery & Metals,

14 Dey Street, New York,

for immediate delivery the following list of Offer for immediate delivery the following list of Tools and Machinery, viz:
One 13 x 35 inch Greene Cut-off Engine, in perfect order; one Brown & Sharpe Universa! Milling Machine; one do. No. 1 Screw Machine with lot of Tools; one 8 inch Pratt & Whitney Shaper; one do. 16 inch Planer, and 13 inch x 4 feet Lathe; one Pond Planer, 22 x 5 ft.; two Fowler Presses, one 800 lb. Merrill Drop, and lot 15 and 18 inch Lathes; all in excellent condition.

### MANUFACTURERS

desirous of introducing their goods to the British and Continental Markets, are advised to insert advertisements in the newspaper "IRON," pub lished every Saturday, at 99 Cannon Street London, E. C.

SCALE: First 3 lines, 3/; every additional line, 10d. Price, 6d, per Copy, or 30/ per annum, inclusive of postage to the United States

### Machine Tools, SECOND-HAND

One Mason Milling Machine. One 15 in. swing 9 ft. bod Screw Cutting Lathe. One 15 in. swing 6 ft. bed Screw Cutting Lathe. One 21 in. swing 8 ft. bed Screw Cutting Lathe. Three Common Milling Machine. One No. 4 Smith & Garvin Milling Machine. Two No. 2 Smith & Garvin Milling Machine. One 2 Spindle Profiling Machine. One No. 3 Brown & Sharpe Screw Machine with chasing bar. Three 4 Spindle Drills. Four 21 inch swing "Pond" Upright Drills. One 5 ft. Radiai Drill. One 22 in.x4 ft. Planer. One 24 in.x5 ft. Planer. One 2000 lb. Ferris & Miles Hammer.

The above tools have been little need, will be sold very low and can be seen at the store of GKORGE PLACE.

GEORGE PLACE,

### 121 Chambers & 103 Reade Streets, N. Y Steel Castings.

CHESTER STEEL CASTINGS CO., Evelina St., Philadelphia, Pa

### Wanted-A Partner.

In a foundry and machine business, already well established. Locality splendid and healthy. A practical man with means is wanted to join practical man who is already well established CAR WHEEL FOUNDRY. P. O. Box 134, Selma, Alaban

### Briesen's Patent Agency

FOR SECURING INVENTIONS, TRADE MARKS, &c., IN AMERICA AND PUROPE,

No. 258 Broadway, New York. A. V. BRIESEN.

### Important to Manufacturers. BISSELL, WELLES & MILLET,

Auctioneers and Commission Merchants, No. 15 Marray St., New York, Selicit from Manufacturers and o hers consignments of Hardware and Cutlery for our weekly Auction Sales to the Trade, or at private sale for cash, as desired. Our facilities for moving large lines of goods are unsurpassed. Advances made if desired.

### AUSTRALIA.

A GENCIES.—B. O. HOLTERMANN, of B. O. H. & Co., Sydney, Australia, will undertake Ageucies on reasonable terms for the Australian colonies, Undeniable references. Communications up to October 12 may be addressed to him at the Ashland House, 4th Avenue and 24th Street, New York; or up to October 5 to Mr. Wilmot, 855 Broad Street, Philadeiphia.

The "Common Sense" Hay Cutters, "VICTOR" CORN SHELLERS, And "PRIZE" CHURN are the best A. B. COHU, Manufacturer,

197 Water St., one door from Fulton, New York. "Everything for the Farm," containing illustrations of 200 of most improved implements or Farm, sent on receipt of 10c.

### Wanted, Light T Rail.

Parties having for sale 50 to 100 tons of slightly scorn, 25 to 35 lbs. T Rail, can find a purchaser at a reasonable price, by addressing (with price delivered in New York or Philadelphia.)

D. G. AMBLIER, Utica, N. V.

### Special Notices.

### A. PURVES & SON,

Scrap Iron & Metals, Machinery, hools, Shafting & Pulleys, Steam Engi. es, Pumps & Bollers, Copper, Brass, Tin, Babbit Metals, Foundry Facings. Best Quality Ingot Brass.

### EXPORT TO RUSSIA!

Having established ourselves in this city for the sale of American Machinery, Hardware, Agricultural Implements and Technical Products generally, we beg to solicit correspondence with manufacturers desirous of being represented in Russia. Familiar with the wants of the country, and, as civil engineers, brought in contact with the industryl interests, we are enabled to introduce successfully American products to the trade.

HARTOCH BROS., Kasauska 46, St. Petersburg.

Edson's Steam and Pressure Recording Gauge for Steam or Water.

Gauge for Steam or Water.

The inventors of this combined "Pressure Recording Gauge" and "High Pressure Alarm" have, after many years of persistent effort and at great expense, succeeded in perfecting a reliable and accurate instrument for measuring either air, steam or water, when subjected to pressure, and for denoting the same by a tracing upon Edson's Patent Logs or "Charts." No manufacturer or steam user can afford to be without them. Adopted by the United States Centennial Commission for competitive test at the present Exposition, and has also been used by the American Institute for several years past as a standard gauge. To be found at the Centennial Exhibition under D 9, column 67, Machimery Hall. Circulars sent on application to lars sent on application to M. B. EDSON, 91 Liberty Street, N. Y.

### SPECIAL NOTICE.

I have three patents for Dies, Machinery and Tools for making Augers and Bits, each running seventeen years; dated as follows: Dec. 19, 1865; January 31, 1866, and July 3, 1866, and There is a special claim on each of the dies. All persons infringing on said patents will be held responsible to the extent of the law.

\*\*Russell Jennings\*\*.

\*\*Deep River, Coun., Sept. 7, 1874.

### DROP FORGINGS.

The TRENTON VISE & TOOL WORKS, Trenton, N. J., having increased their facilities, are now able

Iron and Steel Drop Forgings

HERMANN BOKER & CO., Proprietors, 101 & 103 Duane St., N. Y.

For Sale, &c.

### For Sale.

An active, paying retail hardware business, we located in Philadelphia.

For information apply to

W. H. & G. W. ALLEN, 113 & 115 Market St., Phila.

### For Sale.

Stock of General Hardware, the oldest established and best located in a town of 10,000 inhabitants. at the largest iron ore deposit in the U. S .- 10 furnaces and number various machine shops. In the great Lebinon Valley Agricultural District.

JOHN H. YINGST, Lebanon, Pa.

### MACHINERY FOR SALE. One new Tank Locomotive 24 Inch gauge, cylinders 9 inch bore, 12 inch stroke, drivers with steel tires, weight about 6 tons. Also a second-hand Ver-

tical Engine, 16 inch bore, 16 inch stroke of cylinder, fitted with independent cut-off. All in first-rate order. Address. WARD, STANTON & CO.,

### Newburg, N. Y.

For Sale. Stock of general Hardware business, long estab lished, doing a good business, 140 miles southwest of Clevelaud, O., and 110 miles north of Cincinnati,

O. For particulars, address J. N. A., Box 194, Bellefontaine, 0.

### For Sale,

The oldest established Hardware and Stove House in Central Missouri, in a city of 10,000 inhabitants, and doing a thriving business. Reason for selling, sickness in family. For information refer to SARGENT & CO., 37 Chambers St., N. Y., or address, Box 196, Sedalia P. O., Mo.

### For Sale!

Owing to the death of the senior partner, the surviving partner is desirous of disposing of that part of the business of the firm comprising the Stove and Tin trade. Would dispose of the entire business, including Agricultural Implements, Hardware, Pants, Oils, &c., if desired. Terms casy with good security.

### L. PEASE & SON, Hartford, Vermont.

For Sale, 30,000 acres of Iron Ore and Timbered Land, large water powers, furnace and forge producing best quality, at good profit and sale. Accessible to Western and Eastern markets.

271 N. Charles St., Baltimore, Md.



FOR SALE,

at 10c. a copy, Weekly Spanish Review and Prices Current. The undersigned is also a Translator from and into the English, Spanish, French and German, Latess Translations made: for the governments of Germany and Spain, Pacific Mail S. S. Co., Walter A. Wood; Morris, Wheeler & Co., Todd & Rafferty; John T. Dunkin; Fisk & Hatch; R. W. Wilde; Wilson Sewing Machine Co.; J. Hess & Co.; H. Marquard; M. Echeverria & Co., and Chas, E. Little, New York; Hocking Valley Mfg. Co.; W. F. Potts, Son & Co., Phila; Atlantic and Pacific Land Co.; B. E. Flemming, Jersey City; Wilder & Co., Savannah, and the Tanite Co.; Stroudsburg (\* Emery Grinder"); Abendroth & Root Mfg. Co., to whom he refers.

[# Estimates furnished of translations and Freach

13 Estimates furnished of translations and setting up of Spanish, German and French Catalogues for the Centennial. C. KIRCHHOFF. Metal Reporter of " The Iron Age,"

Box 3091, New York,P, 0,

# Trade Report.

Office of The Iron Age, Wednesday Evening, Oct. 11, 1876. During the past week there has been a decided improvement in the general tone of the financial markets. Gold has declined and securities have advanced. The money market is easy and call loans are freely offered at 2@3 per cent. Prime mercantile paper is quoted at 4 @ 6 per cent. Gold declined during the week from 110 to 108%. The following shows the daily range of the premium :

-						-						1	H	11	ghest.	Lowest.
Thursday								0							109%	109%
Friday					0			0	۰				0	0 1	. 109%	109%
Saturday .							0	0	0 4	0	0	0		0	109%	109
Monday			0 0	۵	0 0		0			0	0		0	0 .	. 109	109%
Tuesday	0.0			0	0 0		0			0 0	0	0	0		.109	108%
Wednesda																108%
PP13 4.	- 2	-			4-	-	4			•			0.5	ŀ,	song and	the general

list advanced. Among the coal stocks New Jersey Central advanced on a demand to cover speculative sales, and as the result of a reorganization of the management and the retirement of Mr. Johnston from the presidency, in which position he was succeeded by Mr. Knight, of Philadelphia. The principal dealings have been in N. J. Central, D., L. and W., Lake Shore, Michigan Central, Western Union and St. Paul. We give below the quotations of active shares at the close of business to-day.

Government bonds declined during the week, in sympathy with gold. The following is a copy of the 36th call of 5-20 6 per cent. bonds, which was published on the 6th instant :

was published on the 6th instant:

TREASURY DEPARTMENT, Oct. 6, 1876.—By virtue of the authority, given by the act of Congress approved July 14, 1870, entitled "An act to authorize the refunding of the national debt," I hereby give notice that the principal and accrued interest of the bonds herein below designated, known as "Five Twenty Bonds," of the act of March 3, 1865, dated November 1, 1865, will be paid at the Treasury of the United States, in the city of Washington, on and after the sixth day of January, 1877, and that the interest on said bonds will cease on that day:

COUPON BONDS.

COUPON BONDS. \$100—No. 12,401 to No. 17,000, both inclusive 500—No. 19,001 to No. 22,100, 1,000—No. 46,851 to No. 53,300,

\$5,000,000 coupons.

\$5,000,000 registered. \$10,000,000 aggregate.

All United States bonds forwarded for re-demption should be addressed to the "Loan Division, Secretary's office," and all registered bonds should be assigned to "the Secretary of the Tressury for redemption."

LOT M. MORRILL, Secretary.

The \$10,000,000 bonds called make, with those called previously, a total of \$50,000,000 of 5-20s called since the organization of the present Syndicate. Probably an equal amount of the new 41/2 per cent. bonds have already been negotiated, and the decline in gold will undoubtedly quicken subscriptions. We give below the closing quotations of govern-

The following is a comparison of the city bank averages for the past two weeks:

The foreign trade movements for the week

are shown in the following tables: IMPORTS

were articles valued as follows:

For the week ended Oct. 7. 1874. 1875. 1876. Total for week.. \$6,479,189 \$4,652,546 \$5,030,112 Prev. reported.. 309,573,072 262,905,839 220,870,239 Since Jan. 1....\$316,059,261 \$267,558,835 225,900,401

Among the imports of general merchandise

	Quant.	Value.
Anvils	178	1.684
Bronzes	88	7.028
Chains and anchors		4,576
		13,803
Catlery		
Guns		8,815
Hardware		882
Iron, pig, tons	899	18,706
Iron cotton ties	260	546
Iron, other, tons		51,326
Lead, pigs		21.397
read, brgs	400	
Metal goods		25,209
Nails	43	1,748
Needles	16	7,088
Old metal		4.747
Per. caps	37	5,336
Saddlery		579
		13,602
Steel	21 200	
Tin, boxes	31,099	107,218
Tin, cakes	63	4,499
Tin. 2.206 slabs	155,769	25.547
Wire		494
Zinc, lbs		587

For the week ended Oct. 10: 1874. 1875. 1876.
Total for week. \$5,240,286 \$4,877,407 \$6,003,215
Prev. reported. 294,858,723 191,847,115 202,914,784 Since Jan 1....\$230,009,009 \$196,734,522 \$208,917,999

EXPORTS OF SPECIE. For the week ended Oct. 7: Total for the week... Previously reported Total since Jan. 1, 1876
Same time in 1875....
Same time in 1874....
Same time in 1873.... ne time in 1872.

Government bonds at the close were strong

Bid.	Asked.
J. S. Currency 6s1283	124
J. S. 6s 1881, reg 116	116%
J. S. 6s. 1881. con	11734
J. S. 5-20 1865, reg	109
J. 8, 5-90 1866, con	1123
D. S. 5-20 1865. new reg	112%
J. S. 5-90 1865, con113	1123
J. S. 5-90 1867, reg	115%
J. 8, 5-90 1867, con	115%
J. S. 5-90 1868, reg116	1163
C. S. 5-96 1868, cou	116%
J. 8. 10-40 reg1131/	1134
U. S. 10-40 cou11434	1143
U. S. Se. 1881, reg	11434
U. S. Se, 1881, cou	1143
J. B. 4368	110%

Bid.	Asked.
Atlantic & Pacific R. R. Preferred 1%	21/
Chicago & Northwestern 37	37%
Pref 61%	6137
Chicago, Rock Island and Pacific 101%	101%
Chic., Bur. & Quincy1143	115%
Col., Chic. & Ind. Cent 8%	
Clear Col Cin and Indula	436
Clev., Col., Cin. and Indpls 36 Cleveland and Pittsburgh 884	8914
Chicago & Alton100	101%
Chicago and Alton Preferred 109	111
Consolidation Coal	35%
Canton 27	88
Del., Lack and Western 70%	70%
Delaware & Hudson Canal 67%	68
Adams Express107	108
American Express 60%	61
United States Express 61%	621/4
Welis, Fargo & Co. Express 85	86
Erie 10 %	10%
Harlem136	137
Hannibal & St. Joseph 13%	14
" Pref 23%	24%
Illinois Central 85%	86 1/2
Kansas Pacific 4	6
Kansas & Texas 7%	816
Lake Shore 57%	57%
Michigan Central 44%	44%
Morris & Essex 94	94%
Milwaukee & St. Paul 284	29
Pref 58%	58%
	836
" Pref 5%	6
New York, New Haven & Hartford 150%	15134
New York Central	102%
New Jersey Central 87%	38
Ohio & Mississippi 10%	10%
Pacific Mail 2834	2336
Panama	127
Pittsburgh & Fort Wayne100	101
Pacific of Missouri 9	3%
Quicksilver	14
Pref 17	21
St. L., Kan, City Northern 5%	636
St. L., Kan. City Northern 5% Pref	29
	5%
Tol., Wabash & Western 5½ Union Pacific	63%
Union Pacific 63 Western Union Telegraph 71%	71%
western Union relegraph 1174	11/6
-	

### GENERAL HARDWARE.

Although the market is not quite as active as t was a week ago, a fair business is being done and a good many buyers are in the city. Prices are very steady, and no change in values of any importance is reported during the week.

On Tuesday next, the 17th instant, the Western Hardware Association will commence their annual session at the Lindell Hotel, St. Louis. On the opposite page we print among "Special Notices" a card addressed "To the Hardware So Manufacturers," issued by the Manufacturers' Association, to which we invite the attention of those manufacturers who desire to be represented at the convention.

We have received the following letter We have received the following letter:

To the Editor of The Iron Age: Now that the mind of the Jobbing Hardware Trade is agitated on the subject of the "Drumming System," why would it not be well for the Western Hardware Association, which convenes at St. Louis on the 17th inst., to take up and discuss the question at length. If it is capable of being satisfactorily solved this body is the one to do it

The Parallel Mandauer the North Street Str

In Foreign Hardware there is very little to note. The demand continues fair for seasonable goods, but considering the unusually large number of buyers that have visited this market since the opening of the season, the amount of business is not encouraging. There are no changes in values to report.

We have heard of some irregularity in the quotations for the Snell Mfg. Co.'s goods, which can only be accounted for by the intense desire to sell regardless of established prices or hving profit, J. Clark Wilson & Co. quote these goods at discount 25 per cent., which is nominally the price to regular trade. To large buyers an extra discount is allowed, and to the jobbing trade special terms are made.

The Yale Lock Mfg. Co. quote Differential Pullev Blocks at discount 20 per cent. They are the sole manufacturers of these goods in this country, having, as our readers are aware, purchased all the patents bearing on their manufacture.

There is little to report regarding Nails, the demand continues fairly active at unchanged figures. We quote as before: 10d. to 60d. \$3:10. net, with a discount of 10 cents per keg for orders of 200 kegs and over.

The following circular explains itself: Office of F. Stunges & Co.,
Importers of Tin Plate & Metals,
Manufacturers of
Tinned, Stamped And Japanned Wares,
72, 74 ad 76 Lake Street,
CHICAGO, Sept. 30th, 187

72, 74 ad 76 Lake Street, CHICAGO, Sept. 30th, 1876. Having transferred our bu-iness to the Chica go Stamping Company, whose card appears below, we cordially commend them to the con-fidence and good will of the trade. The same hands who have managed our busi-

The same hands who have managed our business for the past eleven years will take charge or the affairs of our successors, but with enlarged facilities and increased capital.

Respectfully yours,
F. STURGES & Co.

Board of Directors: Frank Sturges, E. Morgan, Jr., Edward Cheetham, Wm. S. Potwin, H. S. Slaymaker.
The Chicago Stamping Co. (incorporated Sept. 8, 1876) successors to F. Sturges & Co., manufacturers of Kitchen and House Furnishing Goods, Tinners' Supplies, &c.; jobbers of Tin Plate and Metals. Office and salesrooms, Nos. 72, 74 and 76 Lake street.
Frank Sturges, president; Wm. S. Potwin, vice-president and general manager; E. Morgan, Jr., secretary; H. S. Slaymaker, treasurer. Paid-up capital, \$350,000.
The demand for House Furnishing Goods

The demand for House Furnishing Goods is active. S. Whitman, No. 2331/4 Water street, has issued the following price list for Coal Ho is, which is subject to discount 15 per cent .: Coal Hods. Nos. 14 15 16 17 18 in.
Japanne 1. \$4\*00 \$4\*20 \$4\*40 \$4\*75 \$5\*40
Galvanized. 6\*00 6\*25 6\*50 7\*50 8\*50

The attention of the trade is invited to the advertisement of Smith's Patent Improved Adjustable Hollow Auger on page 20. We believe the article is one of genuine merit.

sale by C. M. Ghriskey, of Philadelphia. We notice the introduction of a new article of Tubing and Piping in the market, in shape of a spiral formed Tube, both riveted and locked in the seams, forming a most substantial and durable article in the way of galvanized house leader, smoke and work pipe, and also for general work pipe purposes, as the lengths are continuous and not made in short joints, as is the case with hand-made pipe. It can be worked with great economy and advantage. J. J. Spowers, formerly agent of the National Tube Works Co., is the owner of the patent for manufacturing this new class of Tubing. The various styles of spiral formed Tubes may be seen at 22 Cliff street, N. Y.

### BRITISH IRON MARKET.

(Specially reported by eable for The Iron Age.)

WEDNESDAY, Oct. 11, 1876. Scotch Pig.-The demand is steady, and large business is doing. Prices are firmer. We quote as follows for makers' irons: Cottness No. 1...... Glengarnock No. 1... Eglinton No. 1....

Manufactured Iron .- The demand continues to improve and prices are steady. A fair business is doing.

Rails are unchanged.

3300 tons, and including 2500 tons Thomas Irons, Nos. 1, 2 X and 2 at \$20 and \$22, Hoboken delivery, are reported during the week. The condition of the market is variously estimated, some makers having plenty of orders while others report a lifeless condition of affairs. The Thomas Iron Company have lately increased their production by putting in blast two of their idle furnaces; they now have six furnaces running. As regards prices the tone of the market is decidedly strong, and we continue to quote No. 1 Foundry, \$22; No. 2 Foundry, \$20; Gray Forge, \$19 @ \$20.

Scotch Pig.-Sales of Scotch Iron are limited to small parcels for immediate use. We do not hear of any late arrivals, and we quote as before: Coltness, \$28.50; Glengarnock, \$27.50; Eglinton, \$26.50.

Rails.—The transactions in Iron Rails continue to be of a limited character. During the week a lot of 500 tons Iron were sold at a private price. We quote Iron at tidewater, \$39 @ \$43. In Steel Rails no new business is reported, and we quote, nominally; \$55 at tide-

Old Rails .- We quote, on a du'll market.

Scrap .- We continue our quotation of \$26 @ \$27 for Wrought, from yard.

The Cambria Iron and Steel Works have issued the following under date of 5th instant:

sued the following under date of 5th instant:

CAMBHIA IRON AND STEEL WORKS, |

JOHNSTOWN, PA. Oct 5, 1876. |

E. Y. Tovensend, Esq., President Cambria Iron
Co.—Dear Ste: I am in receipt of yours of 4th
inst., with the inclosure of a letter from an
officer of the Western railroad companies, asserting that agents of certain rival steel works
have reported "that Cambria Steel is not good,
and that it has been condemued by the
Pennsylvania R. R." In answer thereto I desire to state that the Cambria Company has
under its present management, for over 21 years sire to state that the Cambria Company has under its present management, for over 21 years, produced and sold to the railroad companies throughout this country more than one million tons of rails, and during this period maintaining friendly business relations with the officers of all the leading railway lines, it has received from them voluntary assurances of their entire satisfaction. satisfaction.

I have recently heard of the circulation of I have recently heard of the circulation of vague rumors detrimental to the character of Cambria Steel Rails, but until my attention was called to the letter above mentioned, I did not deem the slanders worthy of notice, for the motives prompting them may be understood by considering their source, which is not of such a character as to disturb the confidence of our customers. of our customers.

of our customers.

Lest, however, parties, who have not previously dealt with the company, may be influenced by these false reports, I should advise publishing the certificates voluntarily frrnished by the Pennsylvania Railroad Company, since they fully answer and refute the slanders referred to.

Considering that the service on the Pennsylvania Railroad, from its heavy tonnage and the

Considering that the service on the Pennsylvania Railroad, from its heavy tonnage and the general character of its way, furnishes probably the severest test of rails in the world, these certificates will especially commend themselves to officers of other roads, who, being solicitous for the best interest of their stockholders, will regard the experience of this company as of great value to themselves.

Believing the adoption of the above advised course to be the best for our general interests, I am Yours, very truly,

am Yours, very truly, (Signed) D. J. Morrell, Gen'l Manager.

(Signed) D. J. MORRELL, Gen'i Manager.

PENNSYLVANIA RAILBOAD COMPANY, First Vice President's Office, PILLABELIPILA, April 7, 1876.

E. Y. Townsend, Esq., President Cambria Iron Co.—DEAR SIR: In response to your inquiry as to our experience with and opinion of Cambria Steel Rails, I have to say we commenced using them in August, 1870, and have since that time received nearly 45,000 tons for our main line and 25,000 tons for our main line and 25,000 tons for our reports show that the Rails have proved to be equal to any other Steel Rails that we have used, including most if not all the prominent foreign and domestic makes. Yours truly, (Signed) G. B. Robberts, Vice-Pres't.

(Subject) Rails manufactured by Cambria Iron Company.

Company.

Pennstlyania Railroad Company,
Office of Engineer of Maintenance of Wax,
233 South Fourth Street,
PHILADELPHIA, October 3, 1876.

Cambria Iron Co.—Gentlemen: We have
an accurate report made every month of the
age of worn out and broken Rails taken up on
all of the roads controlled by the Penna. R. R.
Co., and we find that the Steel Rails made by
your Company give fully as good satisfaction,
last as long, and with fewer broken Rails, than
any other manufacture we have in use.

any other manufacture we have in use.

The percentage of the amount removed from our tracks in 1875, in proportion to the amount used, is lower than any other manufacture we have in use. have in use.

The report for the first eight months of 1876 shows still better results. We have now in use nearly 450 miles of Steel Rails made by the Cambria Iron Co. in our main tracks.

Respectfully.

(Signed) WM. H. Brown, Eng. M. W.

PENNSTLVANIA RAILBOAD COMPANY,
First Vice-President s Office,
PHILADRIPHIA, Oct. 3, 1876.

Mr. Ed. Y. Townsend, President Cambria Iron
Co.—Drar Sirs: In reply to your inquiry I am
pleased to say that our experience with your
steel rails the past summer gives us no reason
to change our views—but rather confirms them
—as expressed in my letter of April 7th, 1876.
Very truly,
(Signed) G. B. ROBERTS, Vice-Prest.

Copper.-Transactions since our last report have been quite considerable, 1,500,000 pounds Lake Superior having sold to arrive, deliverable

21c.; in fact they now all hold at a higher fig. town vessels are in demand. ure, and the market closes with a very firm feeling at 21c. @ 21%c. Baltimore we nominally quote 21c. The tendency in the London mar ket seems to be irresistibly toward a still bigher range. On Saturday last the quotation thence per cable came £79 for Best Selected, and £73 for Chili Bars, which was an improvement of 10/. Since then we are told there are private dispatches in this city to the effect that Chill Bars advanced to £75. 10/. Should this quotation be confirmed it would go to show that the speculators bave taken a firm hold of the metal on the other side, and as it is situated, American Pig.-Sales aggregating about there is no telling what figure they may push it to. Mail accounts are at hand from England to the 28th ult., and we copy therefrom the following passage: "Copper has shown decidedly more firmness this week, and purchases were made yesterday at £1 advance on our last advice. To-day a further increase of £1 is asked, and probably 10/ or £1, 10/ in all would have to be paid, leaving Best Selected £79. 10/." No change has been made in quotations of manufactures, which remain 31c, for Sheathing, and 32c. for Bolts and Braziers; Bronze and Yellow Metal Sheathing, 20%c. @ 21c., and Yellow Metal Bolts, 26c. @ 28c.

Tin .- Dealings in Tin have been restricted to a moderate jobbing trade, yet the market is tolerably firm and steady at the following rates in gold, large lots: Straits, 17c. @ 171/c. English Refined, 16%c. @ 16%c.; ditto Com mon, 161/2c., and Banca, 19c. According to a private telegram from London, received to-day, Straits Tin seems to have advanced to £7J. 10/, after reaching £72 early in the week. Speculators in consequence of the less warlike aspect of Eastern affairs may deem the present moment a favorable one, and attempt running up the price to a higher figure, in which they may be successful, assisted by the ease in money matters on the other side. We can, however, but repeat that the London stock in its unwieldiness seems to forbid any permanent enhancement of values. in receipt of later English mail dates to the 28th ult., according to which there was no change at the time, although the tendency was a downward one, consequent on the event of the Dutch sale, at which the lowest figure of the year ruled, although just preceding the we quote Bituminous Coal as follows:

auction Banca had been sold at private sale %
guilder lower. Straits was then £71 @ £71. 10./

The demand for Tin Plates is confined to a light
jobbling trade. We quote at the close, gold,
per box, large lines, ordinary brands, as follows: Charcoal Bright, \$7 @ \$7.12%; do.

Ternes, \$6.37% @ \$6.50; Coke Tin, \$6 @
Ternes, \$6.50; Coke Tin, \$6 @
Ternes, \$6.50; Coke Tin, \$6 @
Ternes, \$6.50; Coke Tin, \$6 @
Terne \$6.12\(\frac{1}{2}\), and Ternes, \$5.50 @ \$5.62\(\frac{1}{2}\). The English report by mail, dated Sept. 28th, reads as follows: "Buying continues to be of the most limited description, and some makers are now granting considerable concessions, making great efforts to obtain orders, but without much effect. This action is only taken by a few manufacturers, several still having work on hand to last for two months more, while many others are independent enough to decline sales at present rates. The weaker works, too, find considerable difficulty now in obtaining credit sufficient to procure raw material. This necessarily hampers their output. At the same time, if the demand does not improve, we shall have, though probably only for a small number of brands, lower prices.'

Lead.-Business in this metal has remained circumscribed to a minimum, few people being in want of any, and the consequence is that for the moment it goes begging. We can thus but repeat our former quotation of 61/c., currency. It would certainly not be feasible to obtain more at present. Foreign we nominally quote 6%c., gold. The English report of Sept. 28 expresses itself to the following effect: "Though the tone of the market is weak, few of the usually cheaper sellers are in a position to deliver promptly. Thus for any lots immediately wanted the higher figures would have to be paid. To-day's values are: Spanish Pig. £20 @ £20. 10/, net; English Ordinary, £21. 2/6 @ £21. 5/; ditto Soft, £21. 10/ @ £22." Manufactured continues moderately active at 8%c. for Bar, 9%c. for Pipe, and 10c. for Sheet, less the usual discount to the trade.

Spelter and Zinc .- Although Domestic Spelter can now be procured at the reasonable figure of 6%c., currency, this does not seem to stimulate the demand, which remains as slack as heretofore, and none but insignificant transactions are reported. Of Foreign 25 tons C. S. H. sold, on the spot, at 7c., gold, and the unsold stock now amounts to but 50 tons W. H. Nothing has transpired in Silesian afloat. We quote the same at the close, 7c. @ 71/c., gold. Later Continental news has not reached us. Sheet Zinc .- The market is rather quiet at 8%c. @ 8%c., gold, for Mosselmann, and 8%c. @9c., currency, for American.

Antimony .- There is very little doing, business being confined to a small jobbing trade, and the market closes exceedingly dull We quote the same, 14%c. @ 14%c., gold. It will be remembered that at London the leading brands rose during early summer to £65, whence they have since receded to £58; the decline here has been a corresponding one in the in-

### COAL.

Trade is reported good, although the demand is not perhaps quite as brisk as last month. This is, however, generally considered one of the best months for trade, and it has thus far shown a very satisfactory result. Prices are firm at the circular rates; for cash across the counter when the Coal is ordered it would be possible perhaps to obtain a slight concession in October, November and December, at 21c., of most sizes of Coal, Chestnut and Stove are and 450,000 ditto on the spot at the same figure. reported rather scarce. Bituminous Coal re-This pretty much closes out what the mines mains unchanged, and we do not alter our quo-

have left to dispose of all the way to the close tations materially. Freights show a decided of navigation. Very little is to be had now at advance, and we understand that at George-

Our quotations are as follows: PRICES FOR OCTOBER.

PRICES FOR OCTOBER.
Lump. Steamer. Broken. Egg. Glove. Chestnut.
PENNSTLVANIA COAL CO at New York, 65 cents per ton additional.
Pittston 3.10 3.10 8.25 3.38 4.10 3.60
DELAWARE AND HUDSON CANAL CO., at Weehaw-ken, N. J.
Lackawanna 3 25 3 30 3 40 3 50 4 25 3 7
LEHIGH AND WILKES-BARRE COAL CO., f.o.b, at Port Johnson, N. J.
Old Comp'ny's Summit.   4 00    3 60 3 60 4 00 3 80 Honey-Brook Lehigh.   4 00    3 60 3 60 4 00 8 30 Wilkee-Barre   3 25 3 25 3 50 3 50 4 20 8 30 Plymouth Red Ash   3 50 3 50 3 50 4 30 8 50
PHILADELPHIA AND READING COAL AND IRON CO. at Port Richmond, Philadelphia.
Hard White Ash Coal 3 20 3 20 3 20 3 20 3 70 3 20
Coal Schuylkill Red Ash
DELAWARE, LACKAWANNA AND WESTERN, at Hobo- ken, N. J.*
Scranton
PREDERICK A. POTTS, 110 Broadway, New York,— Post Johnson, Elizabethport and Hoboken. L. & W. C. Co, s Wilkes- Barre. 18 25 8 25 3 50 3 50 4 25 3 8

L. & W. C. Co.'s, Old 

3 · 60 3 · 60 4 · 25 8 · 56 3 · 50 4 · 25 3 · 50 3 · 50 3 · 50 4 · 25 3 · 56 4 · 25 3 · 50 A. s. swords, 111 Broadway.-Coal at Newburgh.

Pittston Coal...... 3 10 8 10 8 20 8 30 4 00 8 50 \*Make no prices this month, as the whole product s needed to fill contracts.

We quote Bituminous Coal as follows: Consolidation Coal Co. f. o. b., George-town.
Consolidation Coal Co. f. o. b., Balti-more.
In barges at New York.
Maryland Coal Co. f. o. b., Baltimore.
Varyland Coal Co. f. o. b., Georgetown @ 8-50 BATES OF PHEIGHT FROM HONDOUT ON WANNA COAL," BY BOATS AND BARGES

DELAWARE AND HUDSON CANAL COMPANY 

cars..... Catskili... Rhinebeck.
Poughkeepsie and New Paltz Landing
Fishkill Landing and Newburgh.
Cold Spring and West Point.
Peekskill.
Haverstraw
Nyack.
Sing Sing and Croton Landing.

PREIGHTS-PER TON OF 2940 LBs

	PORTS.	From Elizabethport, Port Johnson, South Amboy, Hoboken & Weehawk'n.	From Philadelphia,	From Baltmore.	From Georgetown.
	Augusta, Me	****			
	Albany	****		\$1.75	****
	Amesbury, Mass Bangor, Me	\$1.25	****	2:00	****
,	Bath, Me	1.00		2.25	2-95
	Baltimore			2711	****
	Boston, Mass	1.50	1.30	2.00	2.00
	Bridgeport, Ct	1.10	1961	1.80	1.80
	Bridgeport, Ct Bristol, R. I. Cambridgep't, Mass.	1.00	****	****	****
	Derby				
1	Digiton			1.90	1-98
1	Rast Cambridge	*1.50	1111	4.00	1111
1	Fall River	1.10	1.35	1.85	1.86
	Hackensack	****		****	****
	Hartford				
	Hoboken	'45		1.40	1.40
	Hudson	140	****	1.80	1.80
	Jersey City Lynn, Mass	1.55	****	1.40	1.40
	Middletown	.90			****
	Mystic				
	Newark:	****		1.50	****
	New Bedford	-85	***	1.40	1:85
	New Haven	1.60		1.65	1.90
į	New London	1.00		1.85	1.95
	Newport	-85		***	
	New York	45	.70	1.20	1.99
8	Norwalk	'85 '90	****	1.40	1.96
	Norwich Pawtucket	1.30	****	1 90	1.00
	Philadelphia			.90	
	Portland	.90		1.45	9.15
	Portsmouth, N. H	1.60	1.95	1.60	3.25
	Providence Poughkeepsie, N. Y	1.10	1.10	1.85	1.60
	Rockland	1:40	****	****	1.40
l	Rockport			****	
	8.00	2222		****	
	Sag Harbor			¥-10	2.10
	Salem, Mass Salisbury Pt., Mass	1.00	****	* 10	2-10
•	Stamford	-85	****		
3	Saybrook	1.00	****	****	***
	Ntonington	1.00	****	****	****
	Taunton	65	****	****	****
	Troy	1.10	****	****	
	Wareham			3-10	9-10
	Weymonth				1:45

\* Sc. per bridge extra. † And Sound Towing. Harbor Freights, 40 cents.

### IMPORTATIONS.

Of Hardware, Iron, Steel and Metals into the Port of New York, for the week end

the wast of wine ma	
ing October 10, 187	6:
Hardware.	Order. Sheet, pkgs.,
Bawo & Dotter, Cases, 5	Steel.
Mdae, pkgs., 1	Prosser Thos. & S
Mdec. pkgs., 1 Congreve Chas. & Son. Wire rode, bdle., 39	Packages, 88
Friedmann & Lauterjung,	Robbins C. & Son Bundles, 162
Mdee, pkgs., 8 Frasse P. A. & Co.	Sulzbacher, Hy work Co.
Mdse. pkgs., 2 Gillespie J. D. C.	Packages, 348 Sulzbacher, Guite
Cases, 5 Barmer & Co.	& Weddes, Rods, bdls., 40
Packages, 2 Hale John M.	Van Wart & McCo Bundles, 247
Nails, bags, 200 Keary P. J. & Bro.	Woodford W. O.
Cares, 12	Cases, 12 Order.
Laughland & Co. Wire, bdls., 122; cks.,	Blooms, 16 Tires, 16
3; rolls, 11 Macy R. H. & Co.	Rods, bdls., 20 Cases, 19
Casks, 7 Providence Tool Co.	Scrap, spring,
Mdse. pkgs., 1 Schoverling & Daly,	Metals.
Mdee. pkge., 3 Sulzbacher, Guitermann	Agostini Jos. Copper ore due
& Weddes, Packages, 5	Bartram Bros.
Van Wart & McCoy,	Scrap, metal, o
Packages, 15 Wiebusch & Hilger Hwd.	Bruce & Cook, Tin plates, bx
Mdse. pkgs., 11	Canadian Bank of
Hardware & cutlery, pkgs., 14	merce, Tin plates, bx
Order. Chains, pks., 161	Cort N. L. & Co. Tin plates, bx

Mallory C. H. & Co. Anchore, 18
Marvel Wm. D.
Ore, tone, 300
Mitander Nile,
Bare, 3857

Naylor & Co.
Bars, 2475
Splegel, tons, 44
Order,
Bars, 901

Tin plates, bxs., 150 Canadian Bank of Com merce,
Tin plates, bxs., 324
Cort N. L. & Co.
Tin plates, bxs., 255
Eggers & Heinlein,
Copper, bbls., 4
Naylor & Co.
Tin plates, bxs. 698

for & Co. Tin plates, bxs., 693 ips, Dodge & Co. Tin plates, bxs., 5157 Phelps, The plates, bxs., sist Order. Tin plates, bxs., 8767 Th, slabs, 340 Tin, bxs., 427 Lead, pigs, 817 Witbout bills of lading. Tin, slabs, 2530

prices are growing weaker, though nominally anchanged. We quote the following as the current purchasing rates:

OLD METALS. PAPER STOCK, &c.

We have very little change to report in the

condition of the Old Metal market since last

week. Trade is dull, and quotations remain

about the same as last reported. The demand

for Rags and Paper Stock is very light, and

current purchasing rates:

Old Metals.—Copper, 14c. @ 15c. per lb.;
Yellow Metal, 10c.; Brass, 9c. @ 9½c.; Composition, heavy, 11c. @ 12c.; Lead, solid, 5½c.;
Tea Lead, 5c.; Zinc, 4c.; Pewter, No. 1, 13c.; do. No.2, 8c. @ 10c.; Spelter, 5½c., Wrought Iron, \$21 per ton; Light do., \$19 per ton; Stove Plate, \$3 per ton; Machinery, do., \$12 per ton; Burnt Iron, \$4:50 per ton.

Rags, &c. —Canvas, Linen, 4¾c. @ 5½c.; do. Cotton, No.1, 5½c.; No. 2, 2½c.; White, No. 1, 5c.; No. 2, 4c.; Colored, do., 2c.; Mixed, Wolen. 2c. @ 3c.; Soft, do., 5c.; Gunny Bagging, 1½c.; Jute Butts. 1½c. @ 2c.; Kentucky Bagging, 3c.; Book Stock, 3c.; Newspaper Stock, 2½c.; Waste Paper and Scraps, 1½c.; Kentucky Bale Rope, 4c.; Oakur Jink, No. 1, 4½ @ 5c.; do. No. 2, 3c.; Tarred Shaking, 1c. @ 1½c.; Grass Rope, 2½c.

### PHILADELPHIA.

Office of The Iron Age, \$30 South Fourth St., PHILADELPHIA, Oci., 10, 1876. generally has been of a healthy character, and

although we connot report any improvement in the condition of many of our most important manufacturing interests, such as iron shipbuilding, locomotive building, or kindred industries, there is in many departments more business doing, and a better feeling prevailing all around. As we have remarked before, it is not reasonable to expect that the first indication of returning prosperity will be seen in a sudden jump; first we must reach bottom, then the return will be gradual, almost imperceptible, perhaps, but a legitimate improvement in any one branch will most probably be followed by a similar improvement in others, until all share in the general prosperity. Some think we are having only a "spurt," to be followed by another period of inactivity, but in our judgment there are some very encouraging signs of a tendency toward permanent improvement, which are at least worthy of a careful consideration. In the first place there is less complaining than there was some time ago; in the next place (coal excepted) there is a general feeling that prices of almost every staple article is at the lowest, while in many cases they are advance has been secured, and as stocks in dealers' hands are generally understood to be very low, what more reasonable every important industry in the land. Reports steady and firm. Cast, \$15 to \$18; Wrought, from the West are especially cheering, crops \$25 to \$27. good, and prices more than usually re- Nauls .- A fair business is doing, and prices after the elections business will receive a to 35c. off to buyers in quantity. strong impetus from that source. The wholevantages of location, &c., continued and rapid- to \$6.75. business, the influence of which may perhaps trade discount. be felt in our workshops as the season ad- Shot .- The demand is fair and prices unvances. The total number of through and lo- changed. We quote, with 10 per cent. discount, cal passengers carried during September by the cash in 30 days: Drop Shot in 25 lb. bags, 10%c.; Pennsylvaria Company was 1,009,440, while in 5 lb. bags, 11%c.; Buckshot in 5 lb. and 25 lb.

ing 251/4, with a steady feeling among holders. Money is abundant and cheap, which some think is an unfavorable sign, showing there are ikely to require capital.

Pig Iron.-There is a steady feeling business doing. Buyers generally appear to be satisfied to obtain good brands at quotations, transactions are mostly in small lots. Sellers are not very eager to push business, unless at full prices, although in one case we hear of sales of both No. 2 and No. 1 Foundry, good brands, at about \$1 per ton below regular quo tations; this, however, was more to secure a special customer than a necessity of the market. We quote No. 1 Foundry, \$22 to \$22.50; No. 2 do., \$20 to \$21, and Gray Forge, \$19 to \$20; market steady.

Ores .- Business is very quiet, and we hear of no recent transactions. Last sales were at our quotations, but liberal corcessions could now be obtained. We quote offerings, f. o. b. at Richmond, Va., as follows: Magnetic, \$4 Specular for Bessemer, \$4.50; Selected ditto, 65 to 70 per cent. of Metallic Iron, \$5. At Cleveland, Lake Superior, \$7; and Republic Mine, \$7.50.

Blooms .- The market is steady, and alhough not much business is passing, except in the higher qualities, prices are firm, with no disposition on the part of holders to make conessions. We quote as follows: Charcoal Scrap Blooms, \$47; Charcoal Ore Blooms, \$41 to \$42; Charcoal Billets of superior quality, from \$60 to \$62: and Bars for converting into Steel, made of best Champlain Iron, \$75. Strictly Cold Blast Charcoal Blooms, Hammered, are noted at \$62 to \$64; and Billets, \$70 to \$74.

Manufactured Iron.-There has been a little more business doing in Bar Irou, and the general tone of the market is better than for some time past. The demand is still very light, however, and the trade anything but active, still there is some improvement, and as stocks are light, and the stores doing a little more business, it is hoped the mills may at least continue running as at present, without the necessity of further curtailment of production. The demand for special sizes is good, and prices are steady and firm, especially for the best brands. There is also a fair business doing in Sheet Iron, also in Plate and Tunk Iron, and a more satisfactory feeling can be noted throughout the trade. It must be remembered, however, that this is the time of year when business is expected to be brisk, but so far no large orders have been placed, and unless the present demand is kept up the mills will soon be idle again, as there is nothing of importance in hand to keep them running for any length of time. Meantime we quote 2 c. @ 2 10c. for Common, and 2.25c. @ 2.30c. for Best Refined.

Horseshoe Iron .- There is no change to report; the demand is light at \$67 @ \$69 for 11/2 and 3/2 to 3/4.

Rails .- The trade is still in a somewhat unsettled condition, but prices are a little firmer, and buyers manifest a disposition to operate on that the mills are all busy, but there is still conbasis of late sales. Several thousand tons siderable growling in regard to price. Common

unless for prompt 6dsh would probably insist on higher prices. Inquiries are numerous, Iron and Steel, but the inquiry is chiefly for and the outlook for business is moderately good small lots, and prices remain unchanged. No. for the balance of the year. We understand 1 Railroad Wrought Scrap quotable at \$25, 4 that the orders on hand will average about months. three months' business ahead for all the mills, and offers of present prices for delivery vext Co. and Parke & Co. report trade tame, as it spring have been refused. We quote Steel has been for some time past, and there does Rails \$52 to \$54, at mills, market firm. Iron not appear to be much prospect of any im-Rails are quiet, the low price of Steel Rails at mediate improvement. tracting more attention from buyers. We hear, however, of sales of about 2000 tons Iron Rails at prices ranging from \$38 to \$39.50, at mills, at is comparatively light, stocks are ample to which figures we quote the market quiet and meet the present demand.

steady. Old Rails .- The demand is not active, and

than to expert that the present improvement transactions are frequent within the range of will be maintained, and gradually extend to our quotations, at which we quote the market

munerative, and it is confidently expected that steadily maintained at \$3.25 per keg, with 25c.

Tin Plates .- There is a moderate amount sale trade has been less active the past week, of business passing at about our quotations, but merchants appear quite sanguine in regard but there is scarcely so much doing as might to the future, and anticipate a satisfactory have been expected at this season. We quote business up to the close of the year. The ex. as follows in United States currency: port trade of the city continues to extend. I. C., 10x14, \$8 to \$8:25; I. X., 10x14, \$10 25 The business of last week shows an increase of to \$10.50; Best Charcoal, leaded, 28x20, \$15 more than 75 per cent., compared with the to \$15.75; other good brands, \$14.25 to \$14.75; corresponding month of last year. This impor- good fair, \$13.75 to \$14.50; Bright Tin, for tant interest is, beyond doubt, firmly estab- Cans, &c., \$6.50 to \$7-25; good Bright Tin, lished in Philadelphia, and with the natural ad- do., \$7 to \$7:371/4; Coke, leaded, 14x20, \$6:50

ly increasing growth may be anticipated. Cen- Lead .- The market for Pig is excessively tennial visitors are estimated at about 100,000 dull, and prices of both Foreign and Domestic permanently in the city. The paid admissions are nominal at our quotations. Manufactured, last week averaged 80,000 per day -480,000 for however, continues steady at 8%c. for Bar, the week. The railways are doing a prosperous 91/4c. for Pipe, and 10c. for Sheet, less the usual

especially Old Brass. We quote: Heavy Old Copper, 161/2c. to 17c.; Light Tinned Copper, think is an unfavorable sign, showing there are 15c.; Copper Bottoms, 14c.; Heavy Red Brass, no important enterprises in contemplation 13c.; Light Red Brass, 12%c.; Heavy Yellow Brass, 11c.; Light Yellow Brass, 10c.; Heavy Clean Pipe Lead, 5%c.; Junk Lead, 5c.; Tea throughout the trade, and a fair amount of Lead, Light Paper, 5%c.; Tea Lead, Heavy Paper, 5c.; New Zirc Clippings, 41/c.; Old Sheet Zinc, 4c.; Yellow Brass Turnings, 8c. to 9c.; and concessions are scarcely expected, although Red Brass Turnings, 10c. to 10%c.; Plumbers' Lead Joints, 61/6c.

### PITTSBURGH.

Office of The Iron Age, 14 Fifth Avenue, t PITTSBURGH, Oct. 10, 1876. People generally are so much absorbed in politics that for the time being business is looked upon as a secondary matter; moreover, as it is probable that the excitement will increase from this on until after the great contest next month, no improvement in business in the meantime can reasonably be expected.

Pig Iron.-The general position of the mar ket has varied but little if any during the last week. Business continues fairly active-all that can be expected-and prices are firm, but unchanged. The consumption hereabout is estimated at from 4000 to 6000 tons per week; yet the sales are nearly all small, ranging from 10 up to 100 tons, which shows that consumers are not inclined to articipate future wants. Eastern Pig is coming forward more freely, yet the mills generally prefer the Western make, notwithstanding it costs from one to two dollars per ton more than Eastern. Quotations may be given as follows:

and a second sec
BITUMINOUS COAL SMELTED.
No. 1 Foundry \$24@ \$25-4 mos.
No. 2 Foundry 22 @ 23-4 mos.
Gray Forge 21 @ 22-4 mos.
Gray Forge
H. R. CHARCOAL,
No. 1 Foundry.       \$27 @ 29-4 mos.         No. 2 Foundry.       25 @ 27-4 mos.         No 3 Foundry.       23 @ 24-4 mos.
Manufactured Iron The situation re-
mains substantially as noted in our last report :
business continues fairly active but water-

unsatisfactory. For Sheet Plate and Tank Iron there is a very fair demand, as well as for many of the leading specialties, including Cotton Ties, but orders for Hoop Iron appear to be falling. Two cents appears to be regarded as the ruling price, although some makers are refusing to sell under 2.10c. to 2.20c., and the general tone of the market is firmer.

Nails .- There is a fair demand, and while business cannot be termed active, it is about all it usually is at this season of the year; prices firm but unchanged, \$2.75, 60 days, for lots of 200 kegs and upward. It is not likely that there will be any change made in the card at the next meeting, which takes place here in a few days, but it is pretty certain that the next change will be upward.

Horse and Mule Shoes unchanged. Shoenberger & Co. continue to quote at 41/2c., cash, for the former and 51/4c. for the latter.

Steel .- There is a continued steady demand for nearly all the leading sizes and makes of Steel, the best evidence of which lies in the fact Since our last report the tone of business length has been of a healthy character, and though we cannot report any improvement in disposition to advance their figures, and than the latter.

Scrap.—There is more activity both in Scrap

Manufactured Copper.-Both Hussey &

Window Glass continues dull, unusually so, and notwithstanding the production

### BOSTON.

BOSTON.

Old Rails.—The demand is not active, and it would be difficult to place any round lots at anything beyond our inside quotation. Meanth anything beyond our inside quotation inside quotation in a very irregular way as to prices, but still the selling interest is working out a good deal of 5cok. There has been a shary canyon any or dealing been any or dealin didded to the selling price. Sieel is moving very fairly into the hands of sleigh and small machinery people, with prices well custained. The demand for choice tool Steel is improving.

We quote: American Tool, 14c. to 15c.;
American Machinery, Sc. to 9½c.; Bessemer Tries, 5½c.; Sweet's Excelsior Tire, 7½c.;
English Tool, 15½c., gold. Copper remains strong and duil at 20½c. to 21c., the manufacturing companies having scoured up the old metal market, and thereby temporarily bridged over their necessities. The demand for manufactured is full, and prices are quite strong. For Manufactured we quote: New Sheathing, 31c; Bolts and Braziers, 32c; Yellow Metal Soits, 25c.; do. Sheathing, 21c. Lead is lower, New York sales having been made to Boston parties 6%. f. o. b., and spot sales of Domestic here at 6%c. This has quickened the market, and a better feeling exists at the close in consequence. We quote: Pig. 6%c., currency; Tin Luned Pipe, 16%c.; Bar Lead, 9%c., less usual trade or 10 per cent. discount. Antimony is dull and easier at 15c., gold, for Boston spot lots. Spelter is easier, offering in New York at \$7.15, and here at \$7.25. Tin is in good request at former prices, both for Pig. and Plates. We quote: Straits, 17%c, to 18c. in good request at former prices, both for Pig-and Plates. We quote: Straits, 17%c. to 18c.; Banca, 21%c. to 21%c.; Refined English, 17%c. to 18c.; good. We quote Plaues: Charcoul I. C., \$7:50; Coke, \$6:25; and Terne at \$7:50 to \$8, gold.—Commercial Bulletia.

CAR WHEEL AND MALLEABLE,

Hanging Rock......... ton. \$40.00 @ 45.00—4 mos. Southern and Western Brands 35.00 @ 40.00—4 mos.

### BALTIMORE.

Messrs. WYETH & BROTHER, Iron and Steel merchants, 46 and 48 South Charles street, report us the following prices under date of Oct. 10: Trade continues ruling quiet, but improved, and in most quarters there is a decided feeling of confidence in present values. The demand for merchant Iron continues to increase, showing the improvement in trade circles as above noted.

AMERICAN REFINED BAR IRON.

Baltimore (	Char	OB	١.				۰	۰	0				٠	0	0.1	 	\$30.00	60	34
Virginta	48										۰		.,				28*00	100	34
Anthracite	No.	1	à		 												23.00	0	24
98	No.	9	-														21.00	0	22
																	20.00		
White and	Mort	lad		٠.		۰	۰	۰			•	•				•	12:00	0	10.

### RICHMOND.

Mr. Asa SNYDER, Iron Merchant and Furnace Agent, Richmond, Va., writes as follows under date of Oct. 9: The Iron market has no noticeable feature to report. Inquiry continues fair, and prices are unchanged. Sales of 130 tons Charcoal Pig Iron.

Mr. S. B. Lowe, under date of Oct. 9, reports as follows: Much activity has been manifested during the past week in the movements of metals from this district. Over 1000 tons of Forge Irons have gone into the hands of actual consumers, and to foundries South and West the shipments have been about 850 tons. The ruling sales are about as follows:

OURE. No. 1 Foundry, extra. \$21.50 @ 22.50
No. 1 Foundry. 20.00 @ 21.00
No. 2 Foundry. 11.00 @ 18.50
Gray Forge 15.50 @ 16.50
White and Mottled 14.00 @ 15.00 HOT BLAST CHARCOAL. Winte and Mottled. 14-90 (6 15-50 Car Wheel Metal. 17-06 20-90 Forge Metal. 17-06 20-90 Cast Scrap, Heavy. per ton, 14-06 20-90 Cast Scrap, Light. 8-90 (6 10-90 Old Car Wheels. 17-30 (6 18-90 Old Car Wheels. 17-30 (6 18-90 Old Car Wheels. 19-30 Old Car Wheels. 19-30

(Moniteur des Interets Mate the Philadelphia and Reading is believed to bare, 10%c.; Bar Lead in 5 oz., 1/2 lb. and 1 ib. bare carried nearly as many. The stock of the latter company is somewhat stronger than last week, the closing quotation to-day be for metals. Market weak under large offerings,

Ward more resolutely, and some of the metals have risen in consequence. A general revival will, b. 7.

1 Mill, "1900 2220

1 Fig., from Alabama, Georgia and Tennessee Ores. 9000 2100

1 Thill, from Alabama, Georgia and Tennessee Ores. 9000 2100

1 Thill, from Alabama, Georgia and Tennessee Ores. 9000 2100

1 Thill, from Alabama, Georgia and Tennessee Ores. 9000 2100

1 Fig., from Alabama, Georgia and Tennessee Ores. 9000 2200

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1 Fig., from Alabama, Georgia and Tennessee Ores. 9000 2200

1 Fig., from Alabama, Georgia and Tennessee Ores. 9000 2200

1 Fig., from Alabama, Georgia and Tennessee Ores. 9000 2200

2 Fig., from Alabama, Georgia and Tennessee Ores. 9000 2200

1 Mill, "1000 2000

2 Fig., from Alabama, Georgia and Tennessee Ores. 9000 2000

2 Fig., from Alabama, Georgia and Tennessee Ores. 9000 2000

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2 Fig., from Alabama, Georgia and Tennessee Ores. 9000 2000

2 Go. 1 Fig., from Alabama, Georgia and Tennessee Ores. 9000 2000

2 Go. 2 Fig., from Alabama, Georgia and Tennessee Ores. 9000 200

### BELGIUM.

BRUSERIA, Sept. 24, 1876.—Iron.—We can only repeat what we have said on several late occasions, that large orders are as yet scarce; the general demand for local purposes is, however, rather more lively, and this gives rise to rather more favorable expectations for the ensuing month or two. Sheet Iron, Merchant Iron, as well as Beams, are now the subject of greater activity, both as regards the demand and manufacture. It should, however, be remarked that the ease with which we have been flooding, particularly the English market, naturally receives a check by reason of the better state of affairs here. Prices now rather tend upward among us, and there is less occas on to force our goods on neighboring markets unless they also rise a good deal. Our machinery shops report more doing; as a general thing, that which is most active in the way of manufacture still continues to be railway material. Cost.—Our cosl exchange has been quite animated, but the various bargains made have not been larte by themselves. The season is now, however, approaching when this will undergo a change, and we shall soon be able to report individually more transactions. Consumers are endeavoring to hold back, and assure our companies that most advantageous offers are being made them from England and Germany. Our Coal regions do not ship very much yet, and in the Liege district some German Coal from the Ruhr has first to be worked off. In about a month from now everything will be getting on satisfactorily in the Coal branch in Belgium.

### GERMANY.

(Koch & Vherboom).

ROTTERDAM, Sept. 26, 1876.— Tin is quiet in expectation of the Netherland Trading Co.'s sale, to take place to-day, and the only sale we have to report a one of Banca at 42 guilders.

### EAST INDIES.

(Dummer & Co.)

BATAVIA, Aug. 14, 1876.—Metals.—From.—Both swedish and English have been sold to a moderate extent, but to-realize the former a further reduction had to be submitted to. English Copier Sheathing has been occasionally salable at prices varying according to assortment. Tin.—At the anction to day of 10,132 plculs Billiton, the average was 46-32 guilders per picul. Coal is difficult to sell; two cargoes of West Hartley changed hands on secret terms; in a Australian nothing is doing. Exchange.—Bince our inst advices our market has been in a most unsettled state, commencing with a strong feeling in favor of sellers, followed by general uncertainty, and finishing off with a very decided change on the side of buyers. After the government drafts on the 23d ultimo, it was generally understood that no further drainage would take place, and the market settled down to its normal state, when on the 5th instant a notice appeared that on the 11th idem another 1,000,000 guilders would be offered for sale, which amount was again altered on the 7th inst. to 2,000,00 guilders. We quote Exchange on England, Bank Hills at 6 months sight, 11-36 guilders; do, private do., 11-37% to 11-37% guilders.

(Auten, Spence & Co.)

Colondo. Aug. 29, 1876.—Plumbago.—Dealers

(Attken, Spence & Co.)

No. 1 Foundry, extra. \$22.00 @ 24.00
No. 1 Foundry, 28.00 @ 24.00
No. 2 Foundry, 18.00 @ 19.50
Gray Forge. 18.00 @ 19.50
Gray Wheel Motal. 19.50 @ 19.50
Forge Metal. 17.00 @ 20.00
Forge Metal. 17.00 @ 20.00
Grast Scrap, Light. 800 @ 10.00
Grast Scrap, Light. 800 @ 10.00
Gray Wheels. 17.50 @ 18.00
Gray Wheels. 17.50 @ 18.00
Gray Wheels. 17.50 @ 18.00
Gray Wheels. 18.00
Gray Wheels. 19.50
FOREIGN.

FOREIGN.

FRANCE.

(Moniteur des Intersta Materials).

June) was altogether 540 tons stream Tin, there being no Ingot Tin, showing a decrease of 152 tons fir am Tin on May and June, 1875. The receipts for the past quarter were 857 tons, showing a decrease on the same quarter last year of 290 tons; and the receipts for the past half year were 1895 tons, showing a decrease of 250 stons of Stream Tin. The above figures show that the continued low price of Tin in Loudon has at last affected the supply, although to a very inconsiderable extent as yet. A more remarkable fact is disclosed that no Ingot Tin has come down during the past two months; smelting on the field has turned out a fallure, and all the furnaces are drawn, and the men dismissed. The total yield I hope to be able to give by next mail, and until then you are unable to draw any conclusions from the above figures, as the quantities of Stream Tin forwarded by the other two routes to the cusat may be very much in excess of last year, or very much less, and until I get the actual figures. I have nothing trustworthy to guide me. In Copper during the last two or three months there has been considerable activity, and calculate that our export of this metal will double itself this year. I hear of some large contracts for the supply of Antimony Ore by the Neardle and other Antimony mines to Melbourne smelters.

### Our English Letter.

Review of the British Iron, Steel, Meta!

Federal Union of Agricultural Laborers (80,000), carpenters and joiners (16,000), stonemasons (25,000), iron founders (13,000), boiler makers and iron shipbuilders (18,000), with sundry others counting 6000 to 10,000 members. The Congress sat the whole week, and indulged, as is its custom, in a vast amount of talking, but did very little real work, that being left (as usua') to the Parliamentary Committee. There were three lady delegates pres-

have to be recorded week after week—some of them of rather large proportions. In my list there is, first, the case of Thomas Leighton, the plate worker and watch dealer, of Show Hill, Birmingham, who owes £12,385, and has assets worth £474. Next comes Mr. Thomas Smith, wool stapler, of Halifax, who owes £20,000, and is expected to be able to pay 6/ in the pound out of his assets. Then, Mr. John Branmall, of Sheffield, whose liabilities are set down at £60,000, and whose assets may yield 10/ in the pound. At Walsall it was shown to a meeting of creditors that Mr. Arthur Hills, chemical manufacturer, owed £55,995, with assets valued at £2296. Liverpool, which has latterly been very sound in commercial matters, of Liverpool, Manchester and Buenos Ayres, whose debts are £150,000, but who have such considerable assets that everybody will probably be paid in full. On Saturday the creditors of Messra. Swan, Coates & Co., of Middlesboro, met at that town, and the statement presented showed the liabilities to be £168,999, with assets set down at £104,884. At the meeting of Thomas Vanghan & Co.'s creditors, the debts were shown to be £270,398, and the assets £1,234,344, showing a surplus of £233,948.

FATAL FIRES IN LONDON.

PATAL FIRES IN LONDON.

PATAL FIRES IN LONDON.

FATAL FIRES IN LONDON.

During the week now ending there have been fires in various parts of the country, but not of serious dimensions, with the exception of a couple in the metropolis, which have had fatal results. In one case a fire broke out early in the morning on the premises of Mr. Manton, Mill street, Hanover Square, and three females are mother and two daughters—were burnt to —a mother and two daughters—were burnt to death. The other conflagration destroyed the Telegraph Houe, Leyton Road, Stratford Newtown, and burnt a young mother and her child to death. In all the London dres there are child to death. In all the London ares there are evidences of supineness on the part of the local or metropolitan governing bodies, the fact being that London is so unwieldy that Bumbledom is unable to cope with it, yet persistently refuses all offers of assistance.

BUT FEW EXPLOSIONS

have been placed on record since the date of One of the number occurred in some Kent, at which place a boiler ruptured itself and recorded the fact in a more or less pronounced manner on the bodies of twelve persons standing near. Three of the injured have since died, and four others are rapidly sliding in the same Hadean direction. Then we have had our customary little colliery explosions; this time at the Maryville Pis, not far from Glasgow, where the foul demons of the mine got louse and exploding most demonically killed two poor fellows and suffocated four others. Another pit disaster was that at Messrs. Bagualt's Cophall Colliery, near West Bromwich, where five miners on the alert with naked candles were surprised (9) by an explosion which injured all as boiler ruptured itself and recorded the on the alert with naked candles were sur-prised (?) by an explosion which injured all so seriously that three are now in a dying condi-tion.

BAILWAY ACCIDENTS.

Of railway accidents, as with the making of books, there is no end, neither hath it at any time entered into the mind of man to conceive what railway officials are capable of when thoroughly aroused. Amongst the matters of this kind during the week have been an acci-

dent near Gainsborough, where the draw bar of some wagons laden with steel rails broke and caused the rails to wage a fierce and successful contest with their captive brethern. The permanent way suffered greatly. At Bradford a passenger train bravely charged at a pilot engine and put it to instant flight, but suffered itself even more severely than the enemy, the passengers feeling not a little bewildered by the result. Then, again, at Skipton of fast goods train disdainfully fet out; at a slow goods train which was shunting, but performed the smash so clumsly that the Midiand Company (which owned both trains) have several thousand pounds to pay, and some few officials now speak of the matter with mournful feeling.

there are orders on the bot ks sufficient to give full work until Christmas, and at other collievy full work until Christmas, and at other collievy full work until Christmas, and at other collievy concerns a far stronger demand is being excerned. So far, nevertheless, the supply is in excess of the demand, and is so likely to remain so, that I believe it highly improbable that could can be advanced more than 1.6 to 2/per ton during the whole of the winter months. Some months ago I alluded to the faet that Messrs. William Corbit & Co., Limited, of the Masborough Stovegate Works, near Sheffield, had asked their workmen to return to the ten lours' system. The men have refused to accede to this request, but have agreed to work by the piece, instead of by fixed weekly wages.

BRITISH IRON TRADE ASSOCIATION.

COAL AND METAL STATISTICS.

The returns of the quantities and value of the coal and metals produced in the United Kingdom, included in the Statistical Abstract, just published, bring the tables down to the end of 1874. In that year the quantity of coal raised published, bring the tables down to the end of 1874. In that year the quantity of coal raised was 125,043,257 tons, the value of which, at the place of production, was £45,849,104, or an average of 7/4 per ton. The suoply was nearly 2,000,000 tons less than in 1873, but it was 1,500,000 in excess of 1872, and largely above the preceding years. Compared with the previous 14 years, the coal produced has risen from 83,635,214 tons in 1861 to 124,043,257 in 1874, giving an average increase of nearly Review of the British Iron, Steel, Metal and Hardware Trades.

(From our Regular Correspondent.)

Sheffield, Eng., Sept. 25, 1876.
The institute meeting
has been held during the week at Leeds, and has been a great success, not so much in respect of the quality of the papers read as in the practical knowledge exchanged or wholly gained by the visits to the many famous Yorkshite from works which surround Leeds, amongst them being the world-renowned Lowmoor and Bowling establishments. The neighborhood is not so much distinguished for the quantity of iron it produces, but for quality it has no rival the world over. You will find all the papers read in the columns of the weekly press, so that I shall not dwell upon the subject in this place further than to say that there was a capital attendance of members from all parts of this country and some Continental countries, including most of our leading metallurgists. Dr. Siemens is the next president elect.

The Teades unionists

the preceding years. Compared with 1260 to 124,043,257 in has 72,000,000 tons a year; and the value at the place of production has risen from £20,908,803 to £45,849,194, being at an average of nearly \$2,000,000 a year. The value of a ton of coals at the pit in 1861 was a fraction under 5/a ton, and at the 14 years, or an average of zease of 2/3½ in the 14 years, or an average of the quantity of fabout 2d, per ton ceres of 2/3½ in the 14 years, or an average of the quantity of the quantity of subject to the quantity of the quantity of fabout 2d, per ton ceres of 2/3½ in the 14 years, or an average of the quantity of fabout 2d, per ton quality of \$2, 20,000,000 a year. The value of a ton of coals at the pit in 1861 was a fraction under 5/a ton, and in 1861 £9,280,975, bid of some produced was 15,331 tons, the value at the place of produced was 15,331 tons, the value at the place of produced ng most of our leading metalities. St. Siemens is the next president elect.

THE TRADES UNIONISTS

have also been in annual session this week at Newcastle-on-Tyne. The number of members (nominal, at any rate) represented was stated to be over 500,000, but I fancy that some discount may be deducted from that total. The largest unions are the Miners' National Association (140,000 members), the Glasgow United Trados Council (40,000), Amalgamated Engineers (44,000), Amalgamated Iron and Steel Workers (20,000), Amalgamated Railway Servants (20,000), National Agricultural Laborers' Union (60,000), Federal Union of Agricultural Laborers (30,000), expenters and joiners (16,000), stones. The total value of the coal and metals shows an increase from £34,602,853 in 1861 to £65,388. an increase from £34,602,853 in 1861 to £63,888, 264 in 1871, the increase being mainly due to the great rise in the produce and relative value of coal, which has even served to countrivalance the reduction under the head of British gold, the value of which in 1861 was £10,816, but in 1874 only £1540, the quantity produced having fallen from 2784 ounces in 1861 and 5290 ounces in 1862 to 385 ounces in 1873.

SCOTCH PIG IRON

ent—a contingent which somewhat overa ed the more timid delegates of the other sex.

PURTHER COMMEDIAL FAILURES

PURTHER COMMEDIAL FAILURES

TOTAL AND COMMEDIAL COMME

												mit.		
	CT 1												0, 1.	
G. M. B., at		٧.						۰	0	0	0			
Gartsherrie,	45					 						. 1	65/6	
Coltness,	46												68/3	
Summerlee,	46												60/6	
Langloan.	8.6											. 1	66/3	-
Carnbroe,	44		0.0			0.0							58/6	
Calder, at Po	rt Dund	8.6										. 1	65/6	
Glengarnock	, at Arge	10	8	8	n							. 1	63/	
Eginton,	40						 			9			57/	
Dalmellingto	D. **												56/6	
Shotts, at Le	ith						 						65/6	
Kinnetl at I													BR/	

the hight of folly. The shareholders evidently thought so by again adjourning.

The eminent cast steel manufacturing house, William Jessop & Sons (Limited), Sheffleld, are concentrating the whole of their workmen at the Brightside Works, Sheffleld, in place of having a portion employed at the Park Works as well.

BRITISH IRON TRADE ASSOCIATION.

On Tuesday a meeting of the British Iron Trade Association was held in the Leeds Town Hall, the president of the association, Mr. G. T. Clark, of Dowlars, being in the chair. There was a fairly good attendance of iron and steel masters. The president stated that, in accordance with the wish of Lord Derby, an endeavor had been made to collect reports of the state of the iron and steel trade of the country, but it was not complete, owing to the trouble of getting returns from Staffordshire and a difficulty in Scotland. He had himself drawn up the South Wales report, which showed that such a depression existed as had not been known for half a century. It was agreed that a report should at once be prepared and sent to Lord Derby. A discussion also took place on the subject of the Rassian protectionist movement, and the treaties with France and Germany. The remaining proceedings were not of great general interest. subject of the Russian protectionist movement, and the treaties with France and Germany. The remaining proceedings were not of great general interest.

BIRMINGHAM AND STAFFORDSHIRE.

BIBMINGHAM AND STAFFORDSHIRE.

In some respects there appears to be an opinion prevalent that prices have about seen their lowest, especially as regards pig non, and that no further reductions are to be looked for. Hot blast pigs are £4.5/to £4.10/, and cold blast, £5.10. Singles sheets are being solidat £9; ordinary good, £10; Monmoor, £10.10, Messrs. Barrows & Sous' B. B. H., £11; best ditto, £12.10/; and best best ditto, £13.10/. Messrs. Baldwin's "Severn" singles to 20 w. g. are £13; Wilden B., £16; B. B., £17; B. B. £13; Wilden B., £16; B. B., £17; B. B. £18.10/; Common bars are £6.10/; ordinary, £7; fair, £7.10/; medium, £8; best, £9 to £9.12/6. Angle iron (Barrow's best), £11.10; Thornaby & Co.'s crown bars, £8; best, £9, and best best, £10; Monmoor rivet iron, £10.15/; ditto best best, £11.15/; mail rods, £7.10/ to £8. Sheets and angles are, perhaps, in steadlest request, but on the whole finished iron is only moving off very slowly. The hardware industries also remain quiet.

SOUTH WALES AND MONMOUTHSHIRE.

Last week Cardiff exported 500 tons of iron; Newport, 1462 tons, and Swansea, 1250 tons, the Monmouthshire works being thus much more active than the Welsh establishments. Most of the iron sent out thence 19 going to Canada neither Russia nor South America being buyer neither Russia nor South America being buyers of iron rails at present. In this report to the British iron trade (alluded to above) Mr. Clark stated that of a total of 115 furnaces in South Wales 75 were out of blast. The coal trade is still good, there having been 89,997 tons exported from the three ports named above during last week. On the Taff Va'e Railway the fitters and engineers are still out on strike against the reduction of wakes, and are being supported by the Engineers' Association at the rate of 15/per man per week. THE METAL MARKETS

been firm, and in some respects prices Messrs, Von Dadelszen & North say: "Cop

rule higher.

Messrs. Von Dadelszen & North say: "Copper.—Chill bars have been in demand, and a large business has been done at £70. 10/ to £71 for g.o.b., spot and to scrive, and £71. 10/ for named brands. Wallaroo cake, ex sale, has been sold at £77! Burra held for £78. English steady; tough, £76 to £7:, select, £77 to £78; strong sheets, £78 to £84. Tin.—The market for Straits has been a little irregular, sales reported at £72, £71. 10/ and £71, according to terms. Operators are inclined to wait the result of the Banca sale on the 26th inst. Australian, on the spot, sold at £70. 10/ to £71, and now offered thereat. Banca, to arrive from Holland, has been sold at £71 in warehouse here, and Billiton at £70, ex ship. The Dutch market is quoted, Banca, 42½f1.; Billiton, 41½f1. to 42f1. English firm; ingots, £76; bars, £77. Tin plates unchanged. Lead rather lower; English pig, £21 to £21. 5/. Spelter.—£22. 15/ to £28. Quicksilver.—£8 per bottle. On Thursday £86 tons of copper ore realized, at Turo, £10,813. 2/6, being an average of £3. 15/6 per ton. Fine copper, 183 tons 2 cwt.; average produce, 6%; average standard, £102. 2/, being an advance of 10/ on the last sale."

The Mining Journal remarks: "Copper.—
The present low price of this metal offers considerable inducement for consumers to lay in large stocks; and, as the chance may not again present itself for many years to come, it will be very unwise if they do not avail themselves at once of this exceedingly favorable opportunity. The quantity of copper to consumers hands is estimated as being very light, and it is by no means excessive in first hands; and, indeed, considering how long bustness has been dull, it is somewhat astonishing that the accumplation The price list of John E. Swan & Bros, varies somewhat from the above, Coltness No. 1 being 68 /: Gartsherrie No. 1, 65 /; Glengarnock No. 1, 62 /6, and Eglinton No. 1, 56 /6 per fon.

THADES OF SHEFFIELD.

In trade generally there has been little or no visible change during the week, nor does any alteration appear likely to take place. In the distribution of the branches referred to more fully in my last week's letter there is still some-little brisk ness, but in others the depression is becoming even more marked than heretofore. The inquiry for armor plates, for instance, has just fallen off very materially, owing to large trails and other commissions braving been run through without others having been run th ability of incurring loss by such a venture. The price of coppor must advance, or the production will diminish to a greater extent both in Eugland and Chili, and the market must, sooner or later, right itself. The Wailaroo sale, on the 26th instant, ought to go off well, and there are three things in its favor—first, the quantity to be offered is less than last time; secondly, the next rale is fixed at a longer interval than hitherto; and, thirdly, because the convenience of small consumers has been specially provided. of small consumers has been specially provided for by making the lots in 5 and 10 tons, instead of 10 and 25 top lots. This last arrangement should excite a lively competition, and the bid ding ought, therefore, to be much improved and higher prices realized. The demand ha

stronger tone that will hereafter prevail.

Lead.—The market keeps quiet, and prices are slightly lower. Quicksilver.—The former price of £3 is still maintained. Tin.—The sales this week are of an unimportant character, but prices have been steadily upheld."

Liverpool prices are unchanged:

Scotch Pig Iron; f. o. b. at Glasgow, per ton.

scotch Fig Ivon; f. o. b.	at e	Glas	gow, p	er	ton.	
Gartsherrie, No. 1	£	B.	d.	£	8.	d.
Good brands, No. 1	3	4		0	0	0
Mixed Nos	2	17	00			0
3 months open	2	16	0 @	0	0	9
delivery	0	0	00	0	0	0
Other Iron : f. o. b. in	Liv	erpo	ol, per	. 20	n.	
	38.	B.	d.	£	n.	d.
Merchant bar	15	12	6 2	6	15	0
Merchant bar, in Wales	6	2	6 @	6	5	0
Staffordshire	7	- 5	00	9	15	0
Hoop	8	0	00	9	0	0
Sheet		10	00	10	10	0
Nat! rod	7	10	00	59	0	0
Bar, best crown	7	13		8	10	0
Botler plates	9	15	00		10	0
Tin Plates: f. o. b. in	Live	rpogr	d, per	800	٠.	
	€	9.	d.	£	8.	d.
Charcoal, I. C	1	5	00	1	7	0
Coke, I. C	1	0	00	1	2	0
Copper: Delivered in 1	live	rpoc	d. per	tor	1.	

HORNS.

Bolt and Sheathing.....

Messrs. John Beckwith, Jr. & Co. give the following report, which is of interest to cutlery marufacturers, relative to the horn market. They state that the public sales were well attended and the hidding throughout animated, the greater portion of the horns brought forward being sold. Heavy and light ox were rather lower, but cows fully maintained their value, while buffaloes advanced 4/ to 6/per cwt. With reference to the public sales of horns this day, Messrs. Robinson & Hadwen report that they were well attended and passed off with good spirit. Prices of River Plate heavy ox and cows advanced about 3/ to 4/per 123, but light ox did not meet with such good competition and suffered a slight decline. Other sorts of ox and cow brought about last sales rates. The few good buffulo horns offered brought an advance of about 7/per cwt.; common and crooked (of which there is a large stock) were not wanted, and all this description was withdrawn for want of competition; since the sale about 35,000 have been placed at a slight advance upon late rates. slight advance upon late rates.

### The Determination of Manganese in Speigeleisen.

Mr. Wm. Galbraith communicates the followng to the Chemical News :

As is well known to those who frequently have occasion to determine the amount of man ganese in speigeleisen, the usual methods are tedious and require great care on the part of the analyst. If sodium acetate is used to separate the iron, the oxide of manganese retains a considerable quantity of soda, which is extremely difficult to get rid of : and, on the other hand, if ammonium acetate is used, the precipitation of the manganese is very slow, or it requires a large excess of tromine.

Although the above methods have been in use for a long time no attempt seems to have been made to get a more expeditious one, or at all events none have been successful until Mr. Parry showed that a definite oxide of manganese could be got, which enabled him to determine the manganese very accurately and expeditiously. His method is simply to dissolve a weighed quantity of the speigeleisen in nitric acid (sp. gr. 1.20) in a small pear shaped flask, evaporate to dryness, and heat pretty strongly over a Bunsen burner or a spirit lamp for about en minutes. He then treats the contents of the flask exactly as a manganese ore, heating with sodium oxalate and hydrochloric acid, and measuring the resulting carbonic acid.

The apparatus he uses (which was devised for the purpose) is, he states, a modification of Scheibler's, but as a matter of fact has many advantages over that apparatus, excellent as it is. One very decided advantage is that it admits of heating the solution; and, altogether, it would be very valuable in a laboratory, where the accurate estimation of carbonates or the measurement of gases is frequently required.

As everyone, however, has not got the apparatus, I thought it would be advisable to show that the manganese could be determined some other way.

If it is admitted that Mn2O2 can be easily formed, a number of methods immediately suggest themselves as being likely to give the the merchants and underwriters in general amount of manganese, prominent among which | bad much confidence either in the lawyers or is the well known method of treating with hy- the discrect merchants, and this court was condrochloric acid, and passing the resulting sequently almost useless. Perhaps the small chloring through a solution of fodide of potas- success obtained by this innovation may to sium, the liberated lodine being titrated with some extent serve as a warning against what sodium hyposulphite .- (Fresenius, fifth edition, are popularly known as tribunats of commerce, p. 185). Accordingly I tried that method, but | because this was essentially a commercial although I took every care, and returned to it tribunal, in which the commercial element again and again, I completely failed to obtain preponderated considerably over the legal, esaccurate or even constant results. This seems | pecially as two only of the judges were to be strange (I may say that Mr. Perry had previously tried and failed also), and at first I at- But coming down to more modern times, we tributed my failure to the fact that I was not find Mr. Edward Lloyd, an enterprising coffee getting Mn<sub>2</sub>O<sub>3</sub>, but was afterward convinced Louse keeper, about 1688, located in Tewer that it is much easier to get that oxide than at street. Like most of the other coffee houses in first sight it appears. I can scarcely avoid com- the city this was the resort of persons intering to the conclusion that there is something wrong with this method of determining free chlorine.

The next method I tried proved in every way uccessful. 1 proceed exactly as Mr. Parry nitric acid (sp. gr. 1.20) in a small round-bottomed flask, and evaporated to dryness. When bottom of the flask is cherry red for ten minutes. It is then allowed to cool very gradually.

At this point, instead of forming carbonic

unoxidized in order to arrive at the quantity of manganese, which can be done, of course, with potassium bichromate solution. If it is feared that the ferrous solution may get oxidized by exposure to the air, a small piece of marble put into the flask, which can also be fitted with a cork and tube, will readily prevent that.

In four successive experiments I obtained the following results:

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method 20:55 per cent., which was done with great care. No. 4 is a repetition of No. 3.

It is evident, of course, that there is nothing original or new in the above method, but it contrasts very favorably with the usual methods of separating the iron with sodium or ammonium acetate, and precipitating the man-ganese from the filtrate with bromine. It is not at all troublesome, does not take long, and has the advantage that the only chemicals and apparatus required are those which are necessary for the assay of iron ores.

### Eastern Pattern Cow Ties.



We illustrate herewith an improved cow tie, which J. Clark Wilson & Co., No. 81 Beekman street, bave recently placed on the market, and which has been made to meet the wants of the Eastern trade. and with special view to security. It will be observed that an extension or knob has been formed on the open ring to prevent the same from drawing through the loop. This drawing through and elosing up of the ring upon the stanchion is a fault which has been much complained of by farmers. The swivel also connects with the loop without any intervening link, thus greatly decreas-

ing the danger of the animal getting his foot over it. The spring hook being made of malleable iron, is less liable to be straightened out than if made of wrought iron. In our issue of September 28th we published their price list for these goods, to which we refer our readers.

### The Beginnings of Marine Insurance. Marine insurance was first practiced in Eng-

land, says the Spectator, by the merchants of the Steelyard. Where the trains of the Southeastern Railway rush into Cannon street, stood a mass of buildings known as the Steelyard," inhabited in mediæval times by a body of German traders. "The vast buildings," says Mr. Martin, "on the river side, as far as they did not serve as stores (storehouses?) for the immense quantities of merchandise collected within, were divided into separate cells, built only for single men, the whole opening out into common reception rooms." Among these traders there can be little doubt a system of marine insurance was in vogue, and these foreigners may be considered the first persons who regularly practiced it in this country. But in those, its earliest days, it was rather a species of mutual insurance than insurance as now understood. Nor does Mr. Martin neglect the important place which the legal side occupies in reference to the progress of marine insurance. He tells us how in the time of Elizabeth an attempt was made, after the departure from England of the Germans and Lombards, to found a Maritime Court, for the purpose of adjudicating upon causes arising "from policies of a surance." This court was to consist of fourteen commissioners, six of whom were to be professional lawyers, while the other eight were to be "grave and discreet merchants." But it does not appear that what is technically called "common lawyers." ested in trade and shipping. But to the individual energy of Mr. Lloyd in obtaining news and spreading it for the benefit of the frequent ers of his establishment may be attributed the fact that Lloyd's became by degrees a spedoes (and find no difficulty in getting Mu<sub>2</sub>O<sub>3</sub>). cies of Underwriters' C'ub, and thus, having One gramme of the spiegeleisen is dissolved in once attained a corporate existence through good management and vast enterprises, ultimately gained a permanent place in commerdry the flame, which may be either a spirit cial history. The other coffee houses of that lamp or a Bunsen burner, is turned, so that the period are now merely objects of antiquarian interest, and their names are remembered only as indicating certain social phenomena of past times. In 1774 the body of merchants new acid. I simply put into the flask a weighed quan-known as Lloyd's migrated to the Royal Kx having a portion employed at the Park Works as well.

It will interest many to know that German silver has been reduced from 3d, to 6J, per pound, according to quality, during the week, making metallic nickel about 7/ per 1b., with 25 per cent. discount off for cash. One or two qualities of house coal have been advanced 61. to 1/per ton during the past few days, but the rise is not general. At Clay Cross colleries

frigate, bound homeward from Vera Cruz, on which \$631,800 was underwritten by members of Lloyd's. In fact, the history of marine insurance is at this period very nearly the same as a history of Lloyd's. Perhaps the most extraordinary story connected with this corporation, or as regards salvage, in maritime annals, is that of the Lutine, frigate, which the author narrates in his eleventh chapter. She was originally a French war ship, carrying 32 guns. but was subsequently captured by Admiral Duncan. On October 9, 1799, she sailed from Duncan. On October 9, 1639, she sailed from Yarmouth Roads, bound for the Texel, laden with a mass of treasure in the shape of bullion belonging to a number of merchants. That same night she was lost on the Island of Viteland, and the whole of her officers and crew were drowned, with the exception of one man, who afterward died before reaching England. A letter was afterward written by Lloyd's Committee to the Admiralty, which stated that "a sum of money equal to that unfortunately lost in the Lutine is going off this might for Hambro'." So that it is rather curlous, as the amount was clearly known at Lloyd's, no accurate information has ever been obtained as to the value of the property which was lost upon the sand banks at the mouth of the Zuyder Zee. All sorts of fabulous stories have from time to time been current. But up to the end of the year 1801, £55,700 worth had been saved from the wreck. Then came a period of such stirring European events that the Lutine, being buried among the shifting sands of the North Sea, was well-nigh forgotten; and then, so lately as 1857 and 1858, more treasure to the amount of £39,203 was realized. The original cargo, it has been estimated, was worth £1,175,000, and therefore it is still possible that Lloyd's may, by some freek of fortune, obtain yet more salvage from the wreck of the Lutine. Yarmouth Roads, bound for the Texel, laden

### Metric Measures.

The Tribune expresses the following sensible views on the subject of the metric system:

The advocates of the metric system of weights and measures are making new and more urgent efforts for its introduction in this country. Quite recently an association has been incorporated for this purpose in Boston, called the American Metric Bureau. The membership

eountry. Quite recently an association has been incorporated for this purpose in Boston, called the American Metric Bureau. The membership is said to be largely composed of teachers, and there is further evidence of this fact in some of the arguments put forth by the bureau, in which the case of learning the metric tables at school is strongly contrasted with the difficulty of mastering the tables of ordinary weights and measures. It might be added that few of the children who are taught with much trouble and weariness to recite long measure, short measure, cubic and square measure, troy, apothecaries' and avoirdupois weight, carry a full remembrance of the figures in after life. Still fewer gan a correct notion of the relations of the tables to each other. It would puzzle most school boys to be asked whether a pound or an onnoe meant the same weight in any two or three of the tables. For most of grown-up men the statement that "a pint is a pound" would be a full showing of their knowledge of the relation of weight and measure. Even those who are obliged by their occupations to know something of these matters, rarely keep them as they do the multiplication table, in their heads. Step, for instance, into the nearest drug store, and ask the man who is dispensing prescriptions how many fluid ounces there are in a gallon. The chances are that he will consult a book, or make a calculation with pencil and paper, before giving an answer.

It goes without saying that if the decimal system of weights and measures were in general use, great ease in all computations which include them would ensue. Nothing could be simpler than the relations of gramme, meter and liter, their parts and their multiples. Grant that "if," and sill the rest is clear. But to bring the system into general use, something more than its usefulness must be shown. The public will never tread the steps which shall lead out of the old method into the new till those steps are plainly placed in sight. After having read much of the literature and heard man which so many barrels of oil can be pure ped in 24 hours—these are simple notions. But put the same facts in the metric expressions, and they convey to most Americans no idea whatever. The public cannot think in the new method till its conceptions have been translated or interpreted to them. As matters now stand our people cannot use metric weights and measures till they are familiar with them; they cannot become familiar with them till they use them. Compulsory measures, such as were employed in France, cannot be attempted for introducing the system here. So it walts.

tempted for introducing the system here. So it waits.

If the gentlemen who are so enthusiastic about the new weights and measures would pay more attention to this branch of the subject—the relation of those we now use to those that are proposed—their schemes of introduction might make more progress. They count many accomplished mathematicians among their numbers; let them try their skill at popularizing the conception of the new quantities by presenting them in the terms of the old. To state to an ordinary man that a meter is 30 inches plus a long decimal fraction, is simply to confuse or repel him; to say to him that 200 feet are nearly equal to 61 meters, may serve to convey an idea. General notions of the new quantities being conveyed, there would certainly be less difficulty in applying them to special purposes. But at best the change will be a slow one so far as the mass of the people are concerned, and even though the metric system be taught in all our schools, it will scarcely be adopted by the present boys and giris for the ordinary transactions of their lives.

The Catasauqua (Pa.) Dispatch, of last! week

The Catasauqua (Pa.) Dispatch, of last, week says: Mr. Samuel Thomas, president of the Thomas Iron Company, was severely burned at Lock Ridge furnaces on Monday of last week. He was examining the workings of the boiler furnaces, and the flames from the doors burned him severely on the face and hands. He was confined to his residence for several days, suffering considerably, but is about again.

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Manufacturers of

# THE IMPROVED Gimlet Pointed Wood Screws,

Patented

1876.



After forty years' experience we offer to the trade our Centennial Screw, pat ented May 30, 1876, as the best we have ever known.

The method of manufacturing is also patented, and we are changing our machiner; as fast as possible, to manufacture the patent improved article only, which, to introduce, will be sold at same price as the old style screw.

The new screws will be packed in manila colored boxes with new label covering end of box, and enlarged figures showing plainly their contents.

To distinguish this screw we have adopted a trade mark, which is also secured to us

The above drawings show the progress of screw making from the old blant point to style now adopted.

Experience has shown the weak point of screws, as formerly made, to be at the heel of the thread, where all the strains of forcing the screw into the wood naturally

To avoid the sharp angle existing in the old style of screws has been the aim of all manufacturers, but every expedient hitherto adopted has proved as objectionable as the evil complained of.

It will be seen in our new screw that not only is the sharp angle avoided, but the strength very much increased, and the threads are of uniform pitch, therefore fol low each other.

CLAIM PATENTED. "A Pointed Wood Screw having the outer periphery of the thread upon its body cylindrical, while a portion of the body below the thread and near the neck is conical, the remainder of the body to the point being cylindrical, and yet having all the thread brought to an edge of a constant angle, without logs in the paths between the threads,

substantially as described."

The "Sunbeam" Gas Stove.

We show in the accompanying cut the "Sunbeam" illuminating gas stove. The de-sign and construction of this new heater combine beauty and utility. The effectiveness in point of heat is said to surpass anything of the kind where gas is the fuel used, and the feature presented by the employment of the corrugated reflector for diffusing light, as well as heat, is certainly striking. To appreciate this the stove needs to be seen in operation. It reminds



ne of the cheerful fire in the grate, without the dust and ashes and danger to clothing and

The employment of gas in cooking and heating is becoming quite general in American cities, even without the indersement of our foreign neighbors who have settled down to the practice. If one were inclined to question the economy of such a use of gas, the practice of the French, for instance, would dispel all doubts on that score, for what that people do not know of household economy is scarcely worth learning. It is not merely in making their cup of coffee or chocolate that they employ gas, but in preparing viands for hotels, boarding houses, seminarles, hospitals, and, of course, the cooking for families, while the ame agent is extensively used for warming

dwellings, offices, hospitals, bath rooms, &c.

The trouble heretofore experienced in the se of gas heating stoves has been the offensive smell arising from an imperfect combus-tion of the gas, particularly when the flames impings on any metal obstruction. With the "Sunbeam" stove this is avoided. The combustion is perfect, as is attested by the illumination and an absolute freedom from any smell. The stove is light and portable; can be taken from one room to another, and quickly put in operation where there are gas fixtures.

There are periods in every year, spring and fall, when more discomfort is felt, and more colds contracted than at any other time. This might be avoided in the bousehold and in the office by the use of a gas stove.

The "Sunbeam" may be seen in operation at the office of the inventor, Mr. A. W. Morton, 22 Platt street, New York, and in the office of the Superintendent of the American Institute Fair, now in progress. impings on any metal obstruction. With the

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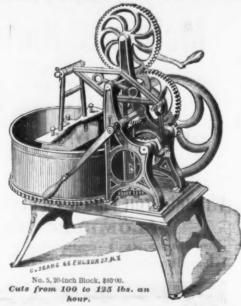
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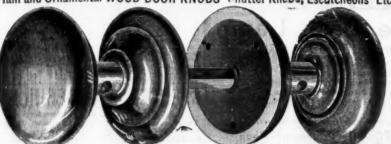
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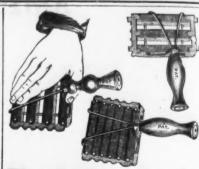
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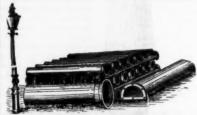
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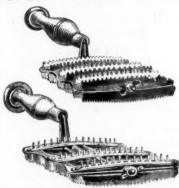
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Parmelee'ssmall, \$20; large, \$36	Chion Spring Hinge Co.   dis 20 5     Union Spring Hinges   dis 65&10 @ 70&10 8     Blind Buttes   Parker   dis 65&10 @ 70&10 8     Parmer   dis 65&10 @ 68&9 \$     Seymour   dis 65&10 @ 65&10	Felloe Plates	Clothes Line, Hart's list	Johnson's Patent Adjustabledis 60&10 %
Holiow Augers, Douglass'	Seymon	Files.  American File Co \$5 00 to £ currency—dis 25 %  Arcade File Works \$5 00 to £ currency  Abburn File Works \$5 00 to £ currency	" Bargent's list dis observed to the say, 45 ± 10 5   " Reading list dis 335, 45 ± 10 5   Cefling. Har's list dis 60-55 ± 10 5   Bargent's list dis 60-55 ± 10 5   Bargent's list dis 40-510 5   Reading list dis 40-510 5	Data Fateria
** Stearns Adjust # dos #49—dis 25&10 s  ** Ives Expansive each #4:30—dis 40;  Universal Expansive. each #4:50—dis 10;  Universal Expansive. each #4:50—dis 10;  Universal Expansive.each #4:50—dis 10;	Nicholson   dis 452104   Huffer   dis 83\(\delta \text{til 0} \text{til 0} \text{til 0} \text{til 0} \\   Garretson   dis 70\(\delta 10 \text{til 0} \text{til 0} \text{til 0} \text{til 0} \\   Clark's Nos. 1, 3 and 5   dis 60\(\delta 10 \text{til 0} \text{til 0} \text{til 0} \text{til 0} \text{til 0} \text{til 0} \\   Clark's Nos. 1, 3 and 5   dis 60\(\delta 10 \text{til 0} \te	American File Co. \$9 00 to £ currency—dis 20% Arcade File Works . \$5.00 to £ currency Audurn File Works . \$5.00 to £ currency Nichoison . new list, Jan. 1, 1675. dis 124; £ C. B. Paul's . \$5.00 to £ currency Helicr & Bros . \$6.00 to £ currency Hiscox File Mfg. Co. \$5.00 to £ currency discox File Mfg. Co. \$5.00 to £ currency discox File Mfg. Co. \$5.00 to £ currency discox File Mfg. Co. \$5.00 to £ currency discovery discover	Haraess. / Sargents size. dis 40&10 % Reading list. dis 40&10 % Coat and Hat, Hart's list dis 60&10&10 % Sargent's list dis 60&10&10 % Reading dis 40&10 %	Tap'd Screw   G14 00&10 %
Gimlet Bits-Screw, \$7'39: no screw, \$9 dis 20210 \$ " Diamond	"Clark's No. 3	Hiscox File Mfg. Co\$5 00 to £ ourreacy, dis 10% Johnson & Bro\$5 00 to £ ourreacy, Jowett's\$5 00 to £ ourreacy 4 50 to £ golo.	Wrought Staples and Hooks and Staples dis 40&10 % Wrought Staples and Hooks and Staples dis 40 % Wire Screw Hooks and Eyes dis 65&10&10 %	Jap'd Side dis 6%:10 %  Clothes Line dis 6%:10 %  Hav Fork per doz \$4 50 65 00, dis 10 %  Pusnps.  Douglas Cistern, etc new list dis 25 %
" Donglass' dis 25ck 10 %	** Sargent's	Jowitt's 4 50 to £ gold.  J.& Riley Carr. 5 Ut to £ gold.  "Horse Rasps 500 to £ gold.  Stubs' 750 to £ gold.  Butcher's 500 to £ gold.	Whiffletree—Patent	Union Mfg. Co's. Cistern and Pitcher. new list dis 20 %
Morse's Bit Stock Drill , List of Jan'y 1, '76. dis 25 g 1,'hommedieu's Ship Augers. dis 20 g		Buttler S. Contract & Co. L. W. Thirty and St. S. Co. C. Contd.	Horse Nails.	" " Rams
Watrous Ship Augers	No. 4. French. Per doz 2-25 dls 50 s No. 5. fron Handie. Per doz 5-25 dls 50 s Sprague Per doz 4-20 s Per doz 4-20 d.50 s Star Per doz 4-20 per doz 8-50 dls 25-210 s	Water Spaner & Co. * Dismond	" P't'd & Pol'd. " 31c 28c 36c 25c 34c 25c	Springper doz \$6.50—dis 25&10 % Leuch's Patentdis 15 %
Awis, Sewing, Common per gross \$1°20-dis 15 %	Star         per doz \$6*50 dfs 25&10 %           Eureka         per doz \$2*94 dfs 10 %           Bardine Scissors         per doz \$7*00 dis 40 %	R. Ibbotson	Cortiand	Barn Door, %, % and % inch. dis 60&10&10 %  Barn Door, %, % and % inch. dis 60&10&10 %  For N. E. Hangers. dis 60&10&10 %
"Bouldered Peg. per gross \$1:00—net  Bhouldered Peg. per gross \$25—dis 15 g.  Patent Peg. per gross \$25—dis 15 g.  Shouldered Brad per gross \$25—dis 15 g.	Caps—Percassien, per 1000.  G. D	"Phile Sheffield," P. T. Co. 5 00 to £ gold Limet& Co. (French) 4 23 to £ gold Flucture Manhammer	Polished Pet Fin 44 Se Se 22c 22c 21c 20c	Barn Door, %, % and % inch. dis 60&10&10 %
Shouldered Brad   Ser Kross 2 - Us is 5     Brad Sets, Alken's   Der (02 \$15 88 - dis 40 \$     No. 42, \$10 50   No. 43, \$12 50   dis 40 \$     Clark's   dis 50 \$     Stanley's Excelsior   \$18 50 - dis 30 & U \$	Double Waterproof, 1-4s, \$1-50; 1-10s, \$1-58c., gold Colt's	Mrs. Coles		Cast Steel
Stanley's Excelsior\$13 50—dis 30&10 \$	Carpet Sweepers.   Carpet Swee	Fluting	Ferkin's Prid—Sinck. See 28c 21c 30c 18c 18c 18c 18c 18c 18c 18c 18c 18c 18	Raikers dis 900 10 00 11 00 18 00 10 10 10 10 10 10 10 10 10 10 10 10
A xes.  Prook s	Carradges.—Metallic	Peerless, 4-inch Rolls 4 00 each net	Putnam Hammer P't'd " 23c 28c 28c 28c 28c 28c Vulcan, P't'd & Blued. " Sic 28c 28c 28c 28c 28c 28c 28c 28c 28c 28	Razor Straps.
Hund's # dox 100 06 12 50 06 14 00  Collins # dox 100 06 12 50 06 14 00  Example (J.C.W. & Co.) bron'd or red., # dox \$10, dis 5 is  Hund's Razor Blade. # doz 9 50 @ 11 59	Wool	Terriess   1   1   2   2   3   3   3   3   3   3   3   3	Sur Isrand, 16c.; Morgan.   16c	
Hard's Famely Disaster   190 (a) 11 50   Simmons'   19 doz 11 00 (a) 11 50   Morris'   19 doz 12 50 (a) 13 50   Morris'	Cast Iron, Steel Pointsper doz \$2'(0 dis 45&5 %	4   4   1   5   6   6   6   6   6   6   6   6   6		Rivets. dis 102 10 % Rivets. dis 102 66 %
Simmons	Plate and Shallow Socket. dis 55 % Deep Socket. dis 40 %	Empire 4 00 each net Eureka, No. 1, 7-inch Roll. 6 73 each net No. 2, 5-inch Roll. 5 00 each net Defiance. 4 10, \$350; 6 in., \$4'00; 8 in., \$6'50 each net No. 2, 5-inch Roll. 5 00 each net No. 2, 5-inch Roll. 5	Burden. # keg. \$4.62\/, R. I. Horse Shoe Co., Perkins Pattern. # keg. 4.67\/, R. I. Pattern. # keg. 5.62\/, Mule Shoes. # keg. 5.62\/, Exception from # keg.	Dailk
Crown # doz 12 50 @ 18 50  John Leverett's # doz 12 50 @ 18 50  John Leverett's # doz 12 50 @ 18 50	Cattle Leaders.  Hotchkiss' Sons'	Defiance		Nos. 4 50 50 50 50 50 60 65 70 Five t Sets. dis 10 5 Road and Levee Scrapers. dis 25 5
M. H. Jones & Co	Sargent's dis 60a:10 % Chain Engiss Coff net gold	Geneva Hand Fluter. 第15 00 per doz net Fluting Scissors. dis 37% 企 40 %		Road and Level Scrapers. dis 25 %
Axies. Common (Guy C. Hotchkiss, Field & Co.)	₩ b	Forges. Empire" (W. P. Kellogg & Co.)	Novelty Ice Breakers	Stair
A xle Grease. Frazer'i. W b 66. Balances. Lebt or Common 2 dia 25&10 \$	Trace. 7-10-2by the cask, * pair gold. 55 & 57c. German Halter Chain	Forks. Hay, Manure & Spading	Ice Awis, Chisels, &c. American Ice Chise!  Merican Ice	Novelty. dis 10% <b>Happe.</b> Manufacturers' List of Sep. 6, 1976.
All other Spring Balances	Galvanized Pump Chain   # 10% of 11c.   Jack Chain, Iron   uns 50&10 \$   uns 50&10 \$	Repks.   dis 30   5   Hay, Manure & Spading.   dis 40 & 5   1   1   1   1   1   1   1   1   1	" Pick in Handleper doz \$300 net lce Axes, Smali, Cast or Maileableper doz \$1.50 net	" % inch W ± 15 c
Ten Eyek. \$\psi\$ dox \$11 50 \&\@ 13 60 net \\ M. H. Jones & Co. \$\psi\$ dox 15 50 \&\@ 13 60 net \\ N blobles Mfg. Co. \$\psi\$ dox 15 50 \&\@ 13 00 net \\ N blobles Mfg. Co. \$\psi\$ dox 15 50 \&\@ 13 00 net \\ N blobles Mfg. Co. \$\psi\$ dox 10 50 net \\ Elephant. \$\psi\$ per dox \$\psi\$ 05 \&\@ 10 00 net \\ Axies. \$\common (Guy C. Hotehkiss, Field & Co.). \$\psi\$ 3.4% \$\color \text{Solid Collar, Case Hardenea, Childed Box. \$\psi\$ 3.5 6 \\ Axies. \$\psi\$ terranse. \$\psi\$ 56 \\ Haisances. \$\psi\$ 10 \$\text{Baisances}. \\ Light or "Coumon" \$\dis 25.65 \\ Baisances. \$\psi\$ new list dis 50.65 \\ Brass (Flated list) \$new list dis 50.65 \\\ Orolde. \$\text{new list dis 50.65 \\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	Chalk. # gross, 50c act	Rry Pana. dis 55 s Burnished, P. S. & W., new list. dis 55 s \$\psi\$ dos\$290 375 425 475 325 600 700 900 900 No 0 1 2 8 4 5 6 7 8	Kettles	" Tar'd Lath Yarn # 15%c # 14%c # Hay Rope. # Lyton and larger # 14%c
Gray's Katchet	Chalk. # gross, 50c net White. # gross, 50c net Red. # gross, 50c net Fine. # gross, 50c net White Orayons # gross, 15%c net	No 0 1 2 3 4 5 6 7 8	Knives.  Ames' Butcher Knives	Barn Door   revised list dis 60, 108-10 \$   Movelty   dis 10 \$   Months   dis 10
Hells	White Orayons	Gauges dis 45-519 5 Marking dis 45-519 5 Star dis 25 5 Wire dis 19 5 " Smith's Patent per doz \$18-00, dis 49 5	"Shoe dis 15 9 dox 81*50 dis 15 9 dox 81*50 dis 15 9 dox 81*50 dis 15 2 dis 25 2 dis	Rules. Boxwood, Ivory. Chapin's dis 60&10 \$ dis 50&10 \$ fisher dis 50&10 \$
" Siver Cnille	Buck Brosnew list dis 17% @ 20 % Hart Mtg. Co	tilmiets.	Carriages (Jap'd 80 cents per gross)	Standard
		Double Cut, Shepardson's dis 20 %  Bartwell's dis 25 %	" Elastic End, No. 8. " dis e0 @ 60&5 % Door, Mineral. " doz \$1.75   " Por Jand " doz \$2.75   dis 35&5 %	Sad Irons. From 4 to 10 lbs. From 4 to 10 lbs. Sad Iron, Nickei Stand attached.  \$ \$ 3 @ Sac net
Connel	Crossman. dis observed and the second of the	" Douglass"	Plant Tip   dis 10	Sad Irons
Lever, Sargent's. dis 60&10&10 \$ Taylor's Bronze or Plated Lever	Socket Corner	" Douglass" (18 226 19 5 1 1 1 1 2 1 1 2 1 2 1 2 1 2 1 2 1 2 1	Melting, Hart's	Beader & Adamson's Flint, 00 to 114\$4 25 # ream   2,234 & 3, 4 75
Hart, Bliven & Mead Mfg. Co	" Spear & Jackson's	Sargent's Patent   dis 70&10 %     Reading Hardware Co   dis 70&10 %     Hart Mfg. Co. 's   dis 60&5&10 %	" Reading	** Assorted. 4 25 **  Star ** Fream \$3. 25 **  Emery. ** Fream \$4. 25 **  New England. same list as B. & A. Flint
Western dis 23&10 % Call. dis 15 % Cow -Common Wronght dis 20&10 %	Iron, Providence Tool Co.'s, Wrt. Iron	Hammers. dis 4545 % Hammers. mmet Hammer Co.'s Handled. dis 25 %	TubularNo. 0, \$11:50; No. 1, \$14:50, net PeeriessNo. 5, per doz \$11:75—dis 10&10 \$ Brady's Patentdis 10&10 \$	New England, same list as B. & A. Flintdis 15 % H. B. & M. Roman Flint " " dis 15 % Sash Cord.
Western dis 20sc 10 %  Sargent's dis 60sc 10 %  Kentucky "Star" dis 20sc 10 %	Clamps.  Fron, Providence Tool Co.'s, Wrt. Iron	Hamsiers   Siedge & Stone # 1 & 40   Sie 25	"Monroe's Patent. per doz \$4'00 dis 20'z Lanterns Tubular. No. 0, \$11'50; No. 1, \$14'50, net Peeriess. No. 5, per doz \$11'15—dis 104:10'z Brady's Patent. dis 104:10'z Brady's Patent. dis 104:10'z Falins. dis 10 de 10'z Falins. dis 10 de 10'z Falins. dis 10 de 10'z Falins. dis 10'z Falins. dis 10'z Falins. per doz \$7'50 net Laurd Freenses. Draw Cut, 1s inch. each \$6'00—dis 20'z Elemen Squeezers. Forcelain Lined. per doz \$7'00, dis 15'z Eureka, Tinned. per doz \$7'00 net Dunlap's Improved. per doz \$0'00 net	Sash Cord.
Dodge's Genuine Kentucky, new list— Nos. 0 1 11/2 2 3 4 5 6 Hog.	Cities, Axles.  Norway or Best	Henry Hammonds'	Police, Small per doz \$750 net Lard Fresses. Draw Cut, 14 inch each \$65 00—dis 20 \$	Fatent. \$\psi\$ \$
" Yaw's Genuine	Superior	Chency s	Lemon Squeezers.  Porcelain Lined	Sash Lecks. Clark's, Nos. 1 and 2, \$10.00 per gross
Bellows. Blacksanths, Common. List of Sept. 15	Brass Fackling	Towers Hand Cuits, \$4 to per pair	Bunlap's Improved per doz, \$100 as 100 net	Ferguson's dis 33/5 3/5 Norwich dis 25/5 Norwich dis 25/5 Walker's dis 10/5 dis 10/5 dis 25/5 dis 10/5 dis 25/5
Mediages	Coffee Milis. Bord and Box	Handles. Door or Thumb Latches—	Innex   Improved	Sash Weights.—Solid Eves
Mackreil's	Selsor's Pat. \$9.50, \$10.50 dia 25 \$ American (Enterprise Mfg. Co.) dis 20 \$ Exercise Steel	Nos. 0 1 2 8 4 Per doz \$0'80 1'00 1'18 1'35 1'50—dis 604:10 \$ Roggia's Latches.	Wire Clothes, Gal'd. each 50c. net	Stow or Perry # doz No. 1, \$15; No. 0, \$21—dis 30 \$ Draw Cut No. 4. each \$30 00—dis 30 \$
Washburn's Patent. Figross \$14 w dis 5 %	The Swift. dis 20 5 Compasses and Dividers. dis 20 5 Remis A tail Co.'s	For rose 5/70   We have been seen as the s	" Ragie dis Trunk " das 25 9	Saw Frames
Blind Staples.  Boardman's Futent, % in. and larger	Cook's dis 15 %  Excessior dis 15 %  Excessior dis 40 %  Pack Stow & Wilcox dis 95 %	Lifting		
Hlocks. dis 20 % Outerential Pulley Blocks. dis 20 % Tuckie, Rope and Iton Strapped, Providence Tool Co.'s list. dis 30&10 %	Superior	N. Carolina Handle Coper gross \$8 50, dis 15 5 Brag Awiper gross \$8 50, dis 20 10 5 Hickory Firmer Chisel, ass'td 5 25	Cabinet—Gavlord         dis           "Eagle         dis           Trunk         dis 25 s           Langatroth & Crane, Round Key         dis 40 s           Flat Key         dis 30 s           Flat Key         dis 30 s           Yale Lock Co., Flat Key         dis 40 s           Sargent & Greenieaf, Flat Key         dis 25 s           Continental, Flat Key         dis 25 s           American Lock Mfg. Co         dis 25 s           Flate.         new list dis 3562 s           Trenton         new list dis 3562 s	Spear & Jackson's   \$3 50 to E gold
Burr's   dis 10 %	Coas. E. Little	Apple and td 6 00 dia 38)6 Socket and td 4 00 66 40 %	American Lock Mfg. Co. dis 28% \$ Plate new list dis 35&2 \$ Trenton	Mill, Gang and Mulay
Keystone Portable Forge Co. dis 20 % to ltm.  to ltm. darrel, Shutter, &c. dis 60.104:10 % of the chapter in th	Cru Knives and Cutters.  Bradley s. dis 10 5  Craw Bars.	Socket asstd 400 6405	Desproyer	One-Man, all lengths dis 40&10 \$  Buck Saws (Cross Bar)
		Auger   4	Washing and 9 % for cash	Whooler & Clement Mfo Co's Band dis 15 &
" Square. dis 50, 102/10; " Shubter. dis 602/10; " Flush, Stanley's. dis 152/10; " Sargent's. dis 502/102/10; " Sargent's. dis 502/102/102/102/102/102/102/102/102/102/1	Curing Tougs. \$2.00, \$2.40. dis 10 \$ Curing Tougs. \$\tilde{\psi} \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	Bonglass per set \$1 00—dis 20&10 5	Parker - Whimle	Livingston's Framed Wood—  Nos. 10: 102 108 104 105 106  Per doz \$12'00 10'00 12'00 9'00 8'00 6'00 dts 10 \$
*** Sarçent's dis 50s to de 10s	Pinching Irons. \$\psi\$ doz \(^7\) 50—dis 20 \in \text{Carry Combs}_{abc} \text{Curry Comb Mfg. Co.}\$  Curry Comb Mfg. Co. \dis 25\in 10 \text{Mfg. Co.}\$  Curry Comb Mfg. Co. \dis 25\in 10 \text{Mfg. Co.}\$  Fitch's (List of No. 240, \$\frac{3}{2}\). \dis 25\in 10 \text{Spt. Currish Pins.}\$  Wood Tooth (Fuller Bros.) \text{Pion.}\$  Wood Tooth (Fuller Bros.) \dis 25\in 10 \text{Spt. Currish Pins.}\$  Pallwered Glass \text{. ner dos its dis 15} \text{. Currish Pins.}\$  Currish Pins. \dis 25\in 10 \text{Meriden} \text{New Hist July '76, dis 25} \text{. American Pocket (Cultery Co.}\$  American Pocket — Humsson & Beckley Mfg. Co. \dis 25\text{ Naugatacs Cuttery Co.}\$  Naugatacs Cuttery Co. \dis 25\text{ Naugatacs Cuttery Co.}\$	Hansera.  Barn Door	Mallory, Wheeler & Co.	Stillman's Genuine
Union Nut Company, old list	Fitch's (List of No. 24), \$1). dis 25&10 < [subset   402, \$500 - 418   15	Climax No. 2 b pair \$1-25, dis 40 5	Romer's dis 15 5  Vulcan Hardware Co dis 20 5  Very Verk Lock Co dis 20 5	Marian   Genuine
** R. B. & W	Curtain Plans.—Silvered Glassnew iist dis 15 5 Cutiery. American Table & Meriden   New list July '26 dis 25 4	Jugars	J. H Mc Williams	Hammer, Hotchkiss
Boring Machines. Upright, Angular.	Am. Pocket—Humason & Beckley Mfg. Codis 25 \$	Sargent's dis 504 10 8	Mailets,—Hickory and Lignumvitæ	Scales.
Hovey's, no Augers	Naugatuck Cutiery Co	Hatchets = Isaian Blood   dis 15	Dixon's (P. S. & W.).Nos. 1 2 8 4 9 doz. \$14 00 \$17 00 \$19 00 \$30 00 dis 25 \$	Rentes
with Augers 900 11 ou dis 40 % Parr's, no Augers 500 750 dis 30 g with Augers 750 10 ou dis 30 g	Cocos, Piainper doz \$8°25—dis 30 %  Rimmedper doz \$75—dis 20 %  Dog Collars*	Lathing, " 12 S	Perry's (P. S. & W.)Nos. 200 \$30'00 \$40'00—dis 50 \$ Perry's (P. S. & W.)Nos. 200 \$00' 400 9 aos. \$22'00 \$27'00 \$30'00—dis 25 \$	Brown's
Kellogg's, no Augers. 5"25 6"75 dis 15 4 Sweets. 925 4'00 net "with Augers 5"00 6"00 net.	Leatherdis ab a	Lathing, " 128 w doz 150 825 900	A dog. \$19.00 \$19.00119.59.9	Euresa
Fart s, no Augers 500 700 the object with Augers 700 100 die 50 % Keilogg s, no Augers 700 100 die 50 % Keilogg s, no Augers 700 600 net 5 % 400 net 600 net 6	Dos   Springs	Shingling, Nos. 12 8	Perry's (P. 8. & W.)Nos. 200	Universal Family Scale Beans. No. 1 30 to 1300 lbs
Tatan Nut Co new list dis 50/k10/65 s	Gem (Cott)	Newark's Edge Tool Co. s   dis 25 5   Shingling, Nos. 1 2 3   \$\pi\$ doz \$6 50 7 00 7 50   Claw,	Facs\$500 \$150 \$1000 \$1200 \$5500 \$5500	Scrapers.  Box, 1 Handleper doz \$5.46, dis 10 \$
Hotohkiss	No. 3, menum,	Claw, "123. \$\psi\ \doz \cdot 25\ 7.75\ 8.25\ Lathing, "123. \$\psi\ \doz \cdot 650\ 7.00\ 7.50\ Simmon's	Pach	Defining   Box and Ship
Braces   dis doct	Japanned	Lathing   123	Bush's   dis 28 %   Lincoin's   dis 500c 10 %   Weed's   dis 15 %	Ship—Providence Tool Co
Spofford's Patent	Aickeised	" 456\$ doz 14 00 16 00 18 00 78\$ doz 25 00 22 00  D. B. Barton Tool Co. Shingling, Nos. 1 2 3\$ doz \$11 00 10 50 10 00	Lincoin's	Ship-Providence Tool Co.   Co.   Ship   Screw   Drivers   Co.   Ship
Tyes Fatent. dis 40e10 \$ Om non pisa. (American) dis 40e10 \$ Om non pisa. (American) dis 60e10 @ 60e10 \$ Hrackets. (Alis 60e10 @ 60e10 to the fire that the first that the	Crosman's No. 1	Shinging, Nos. 123. — e dez \$11.00 10 50 10 00 Lath. — 123. — e dez 10 50 10 00 9 50 J. P. Verree & Co. — dis5 5	Nails	State Wal.
Harl Kings.—Union Nut Co. dis 906212 S Sargent's dis 60610 S Hotohalis' 25 in. \$225 uet Humason, Beckley & Co. 8 dis 5061085 S	Merril	Lath. 125. 9 doz 10 50 10 60 9 80 1. F. Verree & Co. 9 9 doz 21 50 10 60 9 80 1. F. Verree & Co. 9 9 doz 27 50 10 60 9 80 1. F. Verree & Co. 9 9 doz 27 50 10 60 8 50 10 60 8 50 10 60 8 50 10 60 8 50 10 60 8 50 10 60 8 50 10 60 8 50 10 60 8 50 10 60 8 50 10 60 8 50 10 60 8 50 10 60 8 50 10 60 8 50 10 60 8 50 10 60 8 50 10 60 8 50 10 60 8 50 10 60 8 50 10 60 8 50 10 60 8 50 10 60 8 50 10 60 8 50 10 60 8 50 10 60 8 50 10 60 8 50 10 60 8 50 10 60 8 50 10 60 8 50 10 60 8 50 10 60 8 50 10 60 8 50 10 60 8 50 10 60 8 50 10 60 8 50 10 60 8 50 10 60 8 50 10 60 8 50 10 60 8 50 10 60 8 50 10 60 8 50 10 60 8 50 10 60 8 50 10 60 8 50 10 60 8 50 10 60 8 50 10 60 8 50 10 60 8 50 10 60 8 50 10 60 8 50 10 60 8 50 10 60 8 50 10 60 8 50 10 60 8 50 10 60 8 50 10 60 8 50 10 60 8 50 10 60 8 50 10 60 8 50 10 60 8 50 10 60 8 50 10 60 8 50 10 60 8 50 10 60 8 50 10 60 8 50 10 60 8 50 10 60 8 50 10 60 8 50 10 60 8 50 10 60 8 50 10 60 8 50 10 60 8 50 10 60 8 50 10 60 8 50 10 60 8 50 10 60 8 50 10 60 8 50 10 60 8 50 10 60 8 50 10 60 8 50 10 60 8 50 10 60 8 50 10 60 8 50 10 60 8 50 10 60 8 50 10 60 8 50 10 60 8 50 10 60 8 50 10 60 8 50 10 60 8 50 10 60 8 50 10 60 8 50 10 60 8 50 10 60 8 50 10 60 8 50 10 60 8 50 10 60 8 50 10 60 8 50 10 60 8 50 10 60 8 50 10 60 8 50 10 60 8 50 10 60 8 50 10 60 8 50 10 60 8 50 10 60 8 50 10 60 8 50 10 60 8 50 10 60 8 50 10 60 8 50 10 60 8 50 10 60 8 50 10 60 8 50 10 60 8 50 10 60 8 50 10 60 8 50 10 60 8 50 10 60 8 50 10 60 8 50 10 60 8 50 10 60 8 50 10 60 8 50 10 60 8 50 10 60 8 50 10 60 8 50 10 60 8 50 10 60 8 50 10 60 8 50 10 60 8 50 10 60 8 50 10 60 8 50 10 60 8 50 10 60 8 50 10 60 8 50 10 60 8 50 10 60 8 50 10 60 8 50 10 60 8 50 10 60 8 50 10 60 8 50 10 60 8 50 10 60 8 50 10 60 8 50 10 60 8 50 10 60 8 50 10 60 8 50 10 60 8 50 10 60 8 50 10 60 8 50 10 60 8 50 10 60 8 50 10 60 8 50 10 60 8 50 10 60 8 50 10 60 8 50 10 60 8 50 10 60 8 50 10 60 8 50 10 60 8 50 10 60 8 50 10 60 8 50 10 60 8 50 10 60 8 50 10 60 8 50 10 60 8 50 10 60 8 50 10 60 8 50 10 60 8 50 10 60 8 50 10 60 8 50 10 60 8 50 10 60 8 50 10 60 8 50	Office and riex., New List March 1, 76	Rouno Head Iron Am. Se. Co
Butchers Cleavers. Humann & Beckley Mfg. Co dis 20410 5	Bradley's. dis 15 5 Adjustable Handle. dis 15 5 Bradley's. dis 25 8	Shing/ing, Nos. 1 2 3. * doz 7 25 8 00 8 5 Claw 1 2 8. * doz 7 75 8 60 9 26	Smoot metas Serew, Zinc, israss and copper dis 4° @ 45 % Olmsted's	Round Head Brass "dis 52% \$ Brass and Silver Capped, List March 1, 75
Bestty's dis 25 g Bestty's dis 25 g	Blacksmiths each \$2 25 net Self-Feeding each \$7 50 net	M. H. Jones & Co	Prior's Patent or "Paragon" dis 40 %  Ox Bulls dis 60&10 %  Pencils dis 60&10 %	Coach, Parent Gimlet Point, List Jan. 1, 1875-in 40 @ 50 % Bed. dis 5 @ 10 %
\$19-00 \$21-0 \$24-00 \$27-00 \$30-00 \$23-50 \$30-50 \$40-00 Hare Mile Co	Nobles Mrg. Co	Claw, Nos. 128	Nails. See Trade Report Nails and Washers. Square and Hex., New List March 1, 76	Macaine—Fiat Head, Iron, List Jan. 12, 1875
\$20°00 \$20°00 \$54°20 \$55°20 \$46°20 \$54°00	" Miller's Fallseach \$700, cus 25 %	" " 5 6 7	Lumber 9 gross 900 net	Brass. "dis 10 %

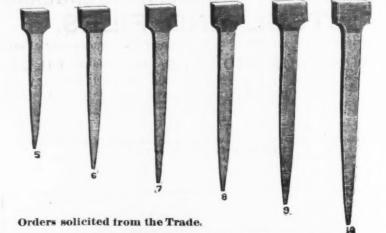
October 12, 1876.		LELE
Nettlefold's Brass   dis 60 @ 50 @ 5 @ 5 @ 5 @ 5 @ 5 @ 5 @ 5 @ 5 @	Wrissers.         Lees than 2 dos         3 doz lots           Providence, with Cog Wheels.         \$2.20         \$9.00           Household, without         60.00         \$8.00           Universal,         60.00         \$8.00           With         72.00         70.00           Novelty,         80.00         \$8.00           Novelty,         72.00         70.00           Sherman,         72.00         70.00           Reliance, with         60.00         85.00           Reliance, with         60.00         85.00           Exceleror Bench Wringers         90.00         \$7.00           Crown No. 2.         50.00         \$80.00	All Mandrel Prices.
Wood, Beach	Household, without 60.00 55.00 Universal, 60.00 55.00 55.00 70.00 50.00	Prices. Fancy Tubir English, Scoto No. 20, Tubing Saw
Hand Rail, Sargent's	Fureka, without 6000 58 00 Novelty, 6600 858 00 72:00 70:00	Yance on l
Scythes Blood's German Steel, Grass F doz \$10 00	Sherman,	All Mandrel pound ad
Secthes   Sect	Excelsior Bench Wringers. 90'00 83'00 79'00 79'00	Plain
Blood's Excelsior and Granger doz 15 00 dis \$1:50	Crown No. 2	Fancy Scotch and
Wadsworth's Grass	Stamped Tin Ware.	4 Per cent.
Seythe Snaths	Planished Tin Ware	12 44
Cast Steel	METALS.	16 Per cent.
Cast 1707. Seymour's Straight Trimmers. dis 60 5 Seymour's Straight Trimmers. dis 60 6 6 6 7 Fruing. Scissors. dis 50 5 Fruing. per dox \$\$7.50 \( \) 6 00, net Baroard's Lamp Trimmers. per dox \$\$7.50 \( \) 6 00, net		Common Pl
Sheaves   Lain   Frimmers   Sheaves   Sheave	HON.—Dury Bars, 1 to 1% cents per lb Sheet, Band, Hoop and Scroll, 1% to 1% cents per lb. Provided, that none of the above Eron shall pay a less rate of duty than 35 per cent. Pig. 87 per ton; Polished Sheets, 3 cents per lb., Wrought Scrap, \$8 per ton; Cast Scrap, \$6 per ton. Ralroad, 30 cents per 100 lbs. Boller and Plate, 1% cents per lb.	Hose Pipes, Door Rail
** R. & E. list	cents per lb.; Wrought Scrap, \$8 per ton; Cast Scrap, \$6 per ton. Railroad, 70 cents per 100 lbs. Boiler and Plate. 1% cents per lb.	High Brass Low
Russell's Anti-Frictiondis 50&2 \$ Sliding Shutter, R & E. List	Pig tron—American. Foundry No. 1	Gilding, 20 d Turnings, F Orders for
	Plate, 1k cents per lb. Plg tree — American. Foundry No. 1.	date, will be Terms—N be added af
Shovel B and Springers   dis 25 s	Glengarnock	ANTIMO LEAD-D
Dunning a Shovels and Scoopsdis 2027% %	Am. Refined, at mill	per ib .: Pi Spanish German Re
Shove   s and Tongs	American, at tidewater, currency \$\Pi\$ ton 39 00 @ 43 00 Old Rails	English American Bar
States.  Square Frames, Round Cornered, by casedis 70 % Less than a case	Scrap. Wrought Scrap, from yard " \$6.00 @ 27.00  Bar Iron from Store,  K to 2 in, round and square	Pipe. Tin Lined I Sheet.
Spokes.		Shot
Spoke Shaves	to 6 in. x % to 1 in	N. P. U A., 25c.; B
Wood.   dis 30 5   Bailey's   dis 25 & 10 %	1 to 6 in. x 34 and 5-16, and 1 to 6 in. x 134 to 2 2 to 2.76 Rods—4 and 11-16 round and square 2 to 2-66 Bands—1 to 6 x 12 to 3-16 2 to 2-16 2 to 2-16	at 7 cents not above
Spoke Trimmers.	swedish Iron. Ordinary sizes. 130 00 @ 132 50 Plow size. 130 00 @ 132 50	and 10 % ac way Bars, Metal cen
Ives'No. 1, \$15'00; No. 2, \$12'00 \$1 doz, dis 33%&10 \$1 Douglass'per doz \$9'00 dis 20&10 \$	Mheer Tron.	mer or pn scription.
Tinned Iron dis 10 @ 15 % By the case dis 20%	Nos. 10 to 20	Spring Homogeneo
Brisannia dis 55 @ 60 % Boardman's, new list. dis 55 %	25 to 26	Machinery
Rogers & Bro. A 1	Galvanized, 14 to 50, prime, W h 84c; 3d quality W h 74c 21 to 34 95 to 38 1 98 to 38 1 98 to 38	Sheet
Holmes, Booth & Haydens	" 25 " " 10%c " " 9%c " 10%c " " 10 c " 10%c " 10%	
Tin (P. S. & W.)— Teas	Russia, Nos. 8 to .6	Tool Tool, extra Spring
Tin (Cowles Hdw. Co.)	Swedish Iron	Machinery
Specials	5 95 0 1 Inch.	English S
Stocks and Diesdis 5&10 s	#UBSIA IRON.  114 5 516 6 7 inch.  1500 700 950 1200 1400 per doz.	44 R
Manuel   M	COPPER-DUIY. Pig. Barand ingot, Sc.; old copper, 4 cents # &; Matafactured (including all articles of which copper is a component of chief value) 45 % ad	n B
Sand Stone. # 75 6c—dis 20 & 10 5 Washiva Stone. No. 1, # 75 50c net No. 2, # 75 25c net	which copper is a component of timer value; 40 % and valorem.  American Ingot. \$ > 20 @ 30%c anglish  which times, brandless Copper, Boltz, 4c.	German Ste
" Slips	Braziers Copper, ordinary sizes, over 16 oz., per	Sheet Cast
Grindstones, Family, Loring's	Brasters Copper, ordinary sizes, over 10 02 per square foot Sac ₩ 5 Brasters Copper, ordinary sizes, 16 oz. and over 12 oz per square foot 34c Brasters Copper, 12 oz per square foot 36c (Circles less tana 98 lens in aimmeter 35c 3	File Steel, 1
Stove Polish   P gross 5 75 net	12 oz., per square 100t	66
Squares. Steel	Circles, 84inch diameter and over	SOLDER SPELTE per 100 lbs
120	Sheathing Copper, over 12 oz. per sq. ft	Silesian, cas American
Rising Sun.   per gross \$5^5 net	Circies, 84 inch dameter and over	TIN-DUT per lb.; Manufact
Improved, Nos. 1 & 2dis 50 % Winterhottom's Try and Mitre	at the Common stanged on one size by the	Bare, Bloc per cent. Banca
Tacks, Half Weight, American	Sheathing Copper, timed on one side, by the case.  case	Straits English
Full dis 10 % dis 10 % for cash Copper, Am. and Swedes dis 10 % for cash Copper Leather Head dis 10 % Copper Leather Head dis 20 % Brads. Half Weight dis 30 %	O'NEILL'S PATENT PLANISHED COPPER.	1 C 10x14 ) 12x12 } 14x20 } F
"Copper	14 and 16 ox. and heavier	1 X 10x14 ) 12x12 F 14x20 V
Shoe Nails— 4-8ths and longer, 9c.; 3½-8ths, 9½c. E b, dis 10 % Trunk, Clout and Finishing Nails—	14 and 16 oz. and heavier	D C 125/x17 D X 125/x17
#8ths and longer, 9c.; 3½-8ths, 9½c. E B, dis 10 % Trunk, Clout and Finishing Nale—  \$	14 and 16 oz. and heavier	For each
Tap Borers. dis 20&10 4 (19 20&10 4 (19 20&10 4 (19 20 10 4 (19 20 10 4 (19 20 10 4 (19 20 10 4 (19 20 10 4 (19 20 10 4 (19 20 10 4 (19 20 10 4 (19 20 10 4 (19 20 10 4 (19 20 10 4 (19 20 10 4 (19 20 10 4 (19 20 10 4 (19 20 10 4 (19 20 10 4 (19 20 10 4 (19 20 10 4 (19 20 10 4 (19 20 10 4 (19 20 10 4 (19 20 10 4 (19 20 10 4 (19 20 10 4 (19 20 10 4 (19 20 10 4 (19 20 10 4 (19 20 10 4 (19 20 10 4 (19 20 10 4 (19 20 10 4 (19 20 10 4 (19 20 10 4 (19 20 10 4 (19 20 10 4 (19 20 10 4 (19 20 10 4 (19 20 10 4 (19 20 10 4 (19 20 10 4 (19 20 10 4 (19 20 10 4 (19 20 10 4 (19 20 10 4 (19 20 10 4 (19 20 10 4 (19 20 10 4 (19 20 10 4 (19 20 10 4 (19 20 10 4 (19 20 10 4 (19 20 10 4 (19 20 10 4 (19 20 10 4 (19 20 10 4 (19 20 10 4 (19 20 10 4 (19 20 10 4 (19 20 10 4 (19 20 10 4 (19 20 10 4 (19 20 10 4 (19 20 10 4 (19 20 10 4 (19 20 10 4 (19 20 10 4 (19 20 10 4 (19 20 10 4 (19 20 10 4 (19 20 10 4 (19 20 10 4 (19 20 10 4 (19 20 10 4 (19 20 10 4 (19 20 10 4 (19 20 10 4 (19 20 10 4 (19 20 10 4 (19 20 10 4 (19 20 10 4 (19 20 10 4 (19 20 10 4 (19 20 10 4 (19 20 10 4 (19 20 10 4 (19 20 10 4 (19 20 10 4 (19 20 10 4 (19 20 10 4 (19 20 10 4 (19 20 10 4 (19 20 10 4 (19 20 10 4 (19 20 10 4 (19 20 10 4 (19 20 10 4 (19 20 10 4 (19 20 10 4 (19 20 10 4 (19 20 10 4 (19 20 10 4 (19 20 10 4 (19 20 10 4 (19 20 10 4 (19 20 10 4 (19 20 10 4 (19 20 10 4 (19 20 10 4 (19 20 10 4 (19 20 10 4 (19 20 10 4 (19 20 10 4 (19 20 10 4 (19 20 10 4 (19 20 10 4 (19 20 10 4 (19 20 10 4 (19 20 10 4 (19 20 10 4 (19 20 10 4 (19 20 10 4 (19 20 10 4 (19 20 10 4 (19 20 10 4 (19 20 10 4 (19 20 10 4 (19 20 10 4 (19 20 10 4 (19 20 10 4 (19 20 10 4 (19 20 10 4 (19 20 10 4 (19 20 10 4 (19 20 10 4 (19 20 10 4 (19 20 10 4 (19 20 10 4 (19 20 10 4 (19 20 10 4 (19 20 10 4 (19 20 10 4 (19 20 10 4 (19 20 10 4 (19 20 10 4 (19 20 10 4 (19 20 10 4 (19 20 10 4 (19 20 10 4 (19 20 10 4 (19 20 10 4 (19 20 10 4 (19 20 10 4 (19 20 10 4 (19 20 10 4 (19 20 10 4 (19 20 10 4 (19 20 10 4 (19 20 10 4 (19 20 10 4 (19 20 10 4 (19 20 10 4 (19 20 10 4 (19 20 10 4 (19 20 10 4 (19 20 10 4 (19 20 10 4 (19 20	Brass.  Brown & Sharp's Gauge the Standard except for Fine Wire.	I C 10x14 ) I C 12x12 } . I C 14x20 } .
Enterprise Mfg Codis 20 % Trapes, Mensuring. American Flash, and Cap Codis 20 %	BRASS MANUFACTURERS' PRIOE LIST. October 7th, 1975.	I C 14x20
Eddy'sdis 20 % Tea Trays. American Tea Tray Co	BRASS MANUFACTURERS' PRIOR LIST. October 57th, 1875. Net cash prices for Roll and Sheet Brass Wire, &c., for quantities of 100 pounds and over at one time. For less than 100 pounds, three cents additional.	1 X 14x20 1 C 20x23 1 X 20x28
Tin Casedis 60&5 %	All Nos. to No. 28, and widths 14 in. and under	I C 20x200
Toe Calks.  Winsted \$\\$ \\$ \\$ 18c. \\ \ \ \ \ \\$ 18c. \\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	All Nos. to No. 28, and widths 14 in. and under	ZINC.—Di 234c. W B. Sneet
Wood Bottom. per doz \$12—dis 30&10 % All Iron		**
Tinners' Tools and Machines. P. S. & W	All Brass thinner than No. 38 is Platers' Brass. at 45c Sheeta 24x8 in. and all sheets cut to particular sizes and lengths	Paper
Trape	Sincets wider than 30 in and under 40 in	Canvas lines
Hotekhiss. Old list dis 40 % Blake's Patent. dis 50 % Mouse, Wood Choker. d' doz holes, 15 & 16c	over14 * 20, *40c	White linen
Nut Co.)		Colored Mixed wool
Patent Choker (Union   W doz holes 16 @ 18c net	Four cents * s more than High Brass. Gliding Metal ?c, * s more than High Brass. In Bars	Soft woolen Gunny bags Jute Butts.
"Catch-em-alive	POP STATING.	Waste paper Rope cutting
Trowels.   dis 10 s   Lottropis Brick and Plastering   dis 10 s	Metal, in width 2 in. to % in. to No. 30, inclusive, ie. per B. advance. Metal, in width 2 in. to 1 in., thinner than No. 30, 2c. per	Kentucky B Oakum juni
Brades' Brick. gold. dis 10 8 Worrall's Brick and Plastering. dis 25 8 Garden	Metal, in width 1 in. to 1/4 thinner than No. 30, Sc. per B.	Grass rope. Tarred Shak White Coim
Triers. Butter and Cheese	Metal, in width 1/4 n. to 1/4, to No. 30, 2c. per b. advance.  Metal, in width 1/4 in. to 1/4 thinner than No. 30, 5c. per b.	" Envelo
Nickel and Giltper dozen \$16.00 @ 18.00		Soft "White Shavi Mixed Shavi
Solid Post	GERMAN SILVER MARKET METAL AND WIRE Market Metal, Wire.  4 per cent. 12 in., to No. 26	Sook Stock,
Paraliel, Parker's	6 4 99 90 10 10 10 10 10 10 10 10 10 10 10 10 10	Newspaper !
* Sargent *	18 " " 1:10 1:50 30 " " " 1:10 1:50 According Strong Sheets over 19 in wide, and weighing	Prints Pure Manila Bogus Manil
** Merrill's	more than 10 Bs., \$2 per B., net.  Advance 2c. for each additional in., in width above 12	Commons Binders' Board Straw Board
** Stevens'		Woolen Taile Satinet Taile
" Stea:n's per doz \$20:00 dia 25 % "Hopkins' per doz \$17:50 dia 10 %	50c. per m. additional. German Silver Scrap one-third less than not price of 12 in. Market Metal. German Silver Turnings, Filings and Chips, half the price of Scrap.	Copper Yellow meta Brass, light
Wheel Barrows. Canal (Pugsley & Chapman)new list dis 30-a Coal, Garden and Stone (Pugsley & Chapman)dis 31-3 Jacob's Pat. Self-Offing R. R. and Canal	BRASE AND CORPER WIRE.	Brass, mixed Heavy Comp Old lead, so
Revised list dis 606-10 c	Gild'g and High Brass. Low Brass. Cop'r. Nos. 0 to 30	Ten lendZincPewter, No.
Wire.  Brass and Copper List of Oct. 27, 1875 net Bright and Annealed Nos. 0 6 18 dis 50 6 124 5	Nos. 0 to 20	Chillian
19 60 35 dis 55 60 57 % 8 60 57 % 8 60 57 % 8 60 57 % 8 60 57 % 8 60 57 % 8 60 57 % 8 60 57 % 8 60 57 % 8 60 57 % 8 60 57 % 8 60 57 % 8 60 57 % 8 60 57 % 8 60 57 % 8 60 57 % 8 60 57 % 8 60 57 % 8 60 57 % 8 60 57 % 8 60 57 % 8 60 57 % 8 60 57 % 8 60 57 % 8 60 57 % 8 60 57 % 8 60 57 % 8 60 57 % 8 60 57 % 8 60 57 % 8 60 57 % 8 60 57 % 8 60 57 % 8 60 57 % 8 60 57 % 8 60 57 % 8 60 57 % 8 60 57 % 8 60 57 % 8 60 57 % 8 60 57 % 8 60 57 % 8 60 57 % 8 60 57 % 8 60 57 % 8 60 57 % 8 60 57 % 8 60 57 % 8 60 57 % 8 60 57 % 8 60 57 % 8 60 57 % 8 60 57 % 8 60 57 % 8 60 57 % 8 60 57 % 8 60 57 % 8 60 57 % 8 60 57 % 8 60 57 % 8 60 57 % 8 60 57 % 8 60 57 % 8 60 57 % 8 60 57 % 8 60 57 % 8 60 57 % 8 60 57 % 8 60 57 % 8 60 57 % 8 60 57 % 8 60 57 % 8 60 57 % 8 60 57 % 8 60 57 % 8 60 57 % 8 60 57 % 8 60 57 % 8 60 57 % 8 60 57 % 8 60 57 % 8 60 57 % 8 60 57 % 8 60 57 % 8 60 57 % 8 60 57 % 8 60 57 % 8 60 57 % 8 60 57 % 8 60 57 % 8 60 57 % 8 60 57 % 8 60 57 % 8 60 57 % 8 60 57 % 8 60 57 % 8 60 57 % 8 60 57 % 8 60 57 % 8 60 57 % 8 60 57 % 8 60 57 % 8 60 57 % 8 60 57 % 8 60 57 % 8 60 57 % 8 60 57 % 8 60 57 % 8 60 57 % 8 60 57 % 8 60 57 % 8 60 57 % 8 60 57 % 8 60 57 % 8 60 57 % 8 60 57 % 8 60 57 % 8 60 57 % 8 60 57 % 8 60 57 % 8 60 57 % 8 60 57 % 8 60 57 % 8 60 57 % 8 60 57 % 8 60 57 % 8 60 57 % 8 60 57 % 8 60 57 % 8 60 57 % 8 60 57 % 8 60 57 % 8 60 57 % 8 60 57 % 8 60 57 % 8 60 57 % 8 60 57 % 8 60 57 % 8 60 57 % 8 60 57 % 8 60 57 % 8 60 57 % 8 60 57 % 8 60 57 % 8 60 57 % 8 60 57 % 8 60 57 % 8 60 57 % 8 60 57 % 8 60 57 % 8 60 57 % 8 60 57 % 8 60 57 % 8 60 57 % 8 60 57 % 8 60 57 % 8 60 57 % 8 60 57 % 8 60 57 % 8 60 57 % 8 60 57 % 8 60 57 % 8 60 57 % 8 60 57 % 8 60 57 % 8 60 57 % 8 60 57 % 8 60 57 % 8 60 57 % 8 60 57 % 8 60 57 % 8 60 57 % 8 60 57 % 8 60 57 % 8 60 57 % 8 60 57 % 8 60 57 % 8 60 57 % 8 60 57 % 8 60 57 % 8 60 57 % 8 60 57 % 8 60 57 % 8 60 57 % 8 60 57 % 8 60 57 % 8 60 57 % 8 60 57 % 8 60 57 % 8 60 57 % 8 60 57 % 8 60 57 % 8 60 57 % 8 60 57 % 8 60 57 % 8 60 57 % 8 60 57 % 8 60 57 % 8 60 57 % 8 60 57 % 8 60 57 % 8 60 57 % 8 60 57 % 8	smaller than No. 8	Wrought iro Machinery is Light Iron
Gaivanized, Nos. 10 to 18	FINE WIRE, BY THE OLD ENGLISH FINE WIRE GAUGE.	Stove plate. Burnt Iron.
Wire.   Brass and Copper.   List of Oct. 27, 1875. net		
dialvanised Telegraph. Nos. 10 and 11	No. 27	Biack lamp-
Annealed Fence. Nos. 9 and 9	Glidgand   High Brass   Low Brass   Copt	" Ivory
Judd's Picture Wire dis 50 % Clothes Line Wire per coil 50c, net	No. 32. 0-56 0-60 0-71 No. 33. 0-60 0-64 0-81 No. 34. 0-64 0-69 0-91	Black Paint, Blue, Prussis
Wrenches, American Adjustable	No. 34. 0'64 0'69 0'73 1'03 No. 35. 0'69 0'73 1'03 No. 35. 0'73 0'82 1'15 No. 37. 0'98 1'28 1'28 1'28 1'28 1'28 1'28 1'28 1'2	" Chines
	Ten cents perp ound extra for Spooling.	Brown, Span Van Carmine, 40. Green. Chro
Collins & Co."s	Plate to No. 90 inchestre above 1/ in to 2 in	Green. Chro
Hull & Belgen's "Climax" dis 55 Lindsay's Patent dis 25 Taft's Pattern dis 20 Taft's Pat	Number. No. 24 25 26 four cents advance on List for each	Mineral Pain
Davis 'atent Dupiex	Number   Above No. 26, special rates   Above No. 26, special rates   Plain is inch   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110   110	Orange Mine Red Lead, Al El Venetia
"Brigg's Patentdis 30&5 \$ Atken's Pocket (Bright)per doz \$10.00—dis 50&10 \$	" 3/16 "	Indian,

	THE THON HOI	-
10ts 70°00 59°00 58°00	All Mandrel Drawn Tubes, 5 cents advance on List Prices. Fancy Tubing, 4 cents advance on List above Plain.	Ro Ble
59.10	Prices. Fancy Tubing, 4 cents advance on List above Plain. English, 8cotch 2nd Extra Patterns Fancy Tubing to No. 20, 20, eents above Plain. Tubing Sawed or Cut 2 to 4 feet long, 2 cents ad- vance on List. Add to 2 cents 4/2 cent for each additional cutting under two feet. All Mandrel Drawn Tubes under 3/2 fin, 25 cents per pound ad. ance.	Un
58-00 70-00 70-00 58-00 87-00	SINCTURING	Ve
79-00 58-00	Fancy. 98 Fancy. 91 Scotch and Extra Patterns. 94	W
10 % 10 % 8 5 % 20 %	4 Per cent	Ye
20 %	9 110 12 12 125 16 Per cent 145 20 156 20 176	Zt
and, that duty	MINCELLANEOUS.	Li
duty ets, 3 erap, and	Common Flain Brass Fall Ears.   39     Hose Pipes, 500 and over.   11     under 500.   76     Door Rail.   6 cents.     Low   18 cents.	8p
20 00	Gilding, 20 cents.  Turnings, Filings and Chips, half the price of Scrap. Orders for Goods on this list received on or after this date, will be filled at the rate herein stated, Terms—Net cash. No discount allowed. Interest to be added after thirty days.	Se
Ci) Wi	ANTIMUN X 17 @ 17%c, currency	No No
35c.	LEAD—DUTY: Pig \$2 per 100 lbs.; old Lead, 1% cent per lb.: Pipe and Sheet, 2% cents per lb.: Spanish	Ai Be Cl
27 00	Per ib : Pipe and Sheet, 2\( \) cents per lb.	Di
2-20		G
25c 27c 26c	N.P. U	-
2:9c 12:50	A, 25c.; B, 26c.; C, 15c.; D, 120. \$ 5.  STEELDUTT: Bars, ingois, Sheets and Colls, valued at 7 cents perlb., or under, 2½ cents; over 1 cents, and not above 11, 3 cents per lb. over 11, 3½ cents per lb. and 10% ad val. Railway Bars 1½ cents per lb. Railway Bars, in part Steel, 1 cent per lb. Provided, that Metal cemented, cast or made from Iron by the Bessemer or pneumai: c process, of whatever form or de acription, shall b classed as  American Clast Steel.	I
	Tooi	
7%c 8 c 8%c	Machinery (Found and square)   .10 @ 11c   File   .11c   Sheet   .14 @ 16c   Saw Plate, mill and mulay   .14 @ 16/c   Saw Plate, gang and X cut   .13 @ 14c   Circular as to size   .18 @ 50c   Circular as to s	be
8% c 9% c 10 c 10 c	Circular as to size	
	Tool.	
doz.	Best Cast Best Cast	
doz.	Extra Cast.   1840	
% ad	Best Double Shear   17%0	
W B	" " 2d quality " 14%c " " 3d quality " 12%c File Steel, Fiat and ½ Round " 12%c " Square and Round " 12%c	
61 62 65	Mill. "13%c "Taper to 4 inch. "16c "Taver 3 and 3% inch "18c	
04 01 64	SOLDER	
.net ot to	SPELTER—DUTY: in Figs, Bars and Plates, \$1 50 per 100 lbs. Sileaian, caah	-
hect heet q. ft	Banca # the 28c., currency	-
9,5	1 C 10x14 ) Prime Charcoal	
¥ 2	IX 10x14   12x12   Prime Charcoal   10·50 @ 10·75   14x20   10   10·25 @ 10·75   14x20   10·25 @ 10·25   10·25 @ 10·25   10·25 @ 10·25   10·25 @ 10·25   10·25 @ 10·25   10·25 @ 10·25   10·25   10·25   10·25   10·25   10·25   10·25   10·25   10·25   10·25   10·25   10·25   10·25   10·25   10·25   10·25   10·25   10·25   10·25   10·25   10·25   10·25   10·25   10·25   10·25   10·25   10·25   10·25   10·25   10·25   10·25   10·25   10·25   10·25   10·25   10·25   10·25   10·25   10·25   10·25   10·25   10·25   10·25   10·25   10·25   10·25   10·25   10·25   10·25   10·25   10·25   10·25   10·25   10·25   10·25   10·25   10·25   10·25   10·25   10·25   10·25   10·25   10·25   10·25   10·25   10·25   10·25   10·25   10·25   10·25   10·25   10·25   10·25   10·25   10·25   10·25   10·25   10·25   10·25   10·25   10·25   10·25   10·25   10·25   10·25   10·25   10·25   10·25   10·25   10·25   10·25   10·25   10·25   10·25   10·25   10·25   10·25   10·25   10·25   10·25   10·25   10·25   10·25   10·25   10·25   10·25   10·25   10·25   10·25   10·25   10·25   10·25   10·25   10·25   10·25   10·25   10·25   10·25   10·25   10·25   10·25   10·25   10·25   10·25   10·25   10·25   10·25   10·25   10·25   10·25   10·25   10·25   10·25   10·25   10·25   10·25   10·25   10·25   10·25   10·25   10·25   10·25   10·25   10·25   10·25   10·25   10·25   10·25   10·25   10·25   10·25   10·25   10·25   10·25   10·25   10·25   10·25   10·25   10·25   10·25   10·25   10·25   10·25   10·25   10·25   10·25   10·25   10·25   10·25   10·25   10·25   10·25   10·25   10·25   10·25   10·25   10·25   10·25   10·25   10·25   10·25   10·25   10·25   10·25   10·25   10·25   10·25   10·25   10·25   10·25   10·25   10·25   10·25   10·25   10·25   10·25   10·25   10·25   10·25   10·25   10·25   10·25   10·25   10·25   10·25   10·25   10·25   10·25   10·25   10·25   10·25   10·25   10·25   10·25   10·25   10·25   10·25   10·25   10·25   10·25   10·25   10·25   10·25   10·25   10·25   10·25   10·25   10·25   10·25   10·25   10·25   10·25   10·25   10·2	
P.B	For even additional A add	
Fine	1 C 12x12 2	
for For	TERNE PLATE.  Prime Char. 2d qual. Coke.  I C 14x20 \$750 \ 275 \ 770 \ 3725 \ 650 \ 670 \ 700 \ 725 \ 12 \ 12 \ 12 \ 12 \ 12 \ 12 \ 12 \	=
.S.c .S.c	1 C 14x20 M F. Brand	
.45c	Buset	
.40c .40c	Paper Stock, Old Metals, & c. (Dealers' Selling Price.)	
.87c .40c .43c .46c	Convas linen	
.49c	Colored	7
.42e .45e .43e	Jute Butts.       24 © 24         Kentuckv bagging.       5% © 5%         Waste paper and scraps.       1 © 1%         Rope cuttings.       14 © 1%	
per per	Conner none	
r B.	White Collar Cultings, all paper	
r b.	" Rnvelope "   7   6   6   6   6   6   6   6   6   6	ı
ire. 0.80 90 1.10	Soft	•
1.35 1.50 sing	Prints. 15 @ 2 Pure Manilas. 24 Bogus Manilas and Hardwares. 1 @ 15	
e 12 to 36	Bogus Manlas and Hardwares   1	
of 12 and	Yellow metal13%	
and p'r.	Heavy Composition	
0°40 0°42 0°43 0°46	Pewter, No. 1	6
0:50 nce	Test lead.   6	
and	Paints, Oils, etc.	
0°51 0°54 0°56 0°56 0°58 0°62		_
0-62 0-66 0-71 0-81 0-91	Black Paint, in oil kegs, 8c.; asst'd cans, 11 c blue, Prussian, fair to best	1
1·03 1·15 1·28 1·58	" Chinese dry	
1 '36 '44 '50	Black lamp—Coach Patners.   \$ 3 % c	
aU.	" in oil	Co

ose Pinklac	Gum, Copal				1356-
" Furst	Shellac, English				554
" Raw "	fark		******		500
mber, Burnt	Pumice Stone, selected Lump				4 03 84
" in oil	" powdered				44
155W	Putty in bladders				3160
ermillion, Chinese. 1 05, gold	in rulk. Rotton Stene, soft, English Spirits Turpentine				1.00
Knglish	Spirits Turpentine				336
** Triente 1 10 **	Whiting, Spanish			******	*** %
American, Common	Gias				
10 Oil	FRENCH WINI				
White, Paris, English, prime	Prices current pe	r box	1 80 fee	et.	
ellow Ochre, French	Single T		,	-	_
Vermontin casks 14c	RIZES.	1st.	zd.	åd.	dtn.
ellow Chrome	6 x 8 to 10 x 15	R 7:50	R 8-7%	8 6:25	5-7
ine White, American No. 1 dry	11 x 14 to 16 x 24	9:50	7.73	7:25	6.
" 1. in oil	18 x 22 to 20 x 30	10:75	9.75	8.75	7.7
French (Paris)ic	15 x 36 to 24 x 30	12:25	10.75	9:00	
(D11m.	26 x 36 to 26 x 44	1.4:50	13.25	9-75	1
inseed Raw # gal. casks, 52c, bbt., 53c	1 26 x 46 to 30 x 50	15:00	14.0	11.25	
" Boiled " 57c. " 58c	30 x 5! to 30 x 54	16.00	14.20	13.00	
Thale, Crude	80 x 56 to 34 x 6 34 x 58 to 34 x 80	17:25	15:50	13.50	
perm. Crude " 1:60	36 x 60 to 40 x 60	20-75	18.75	17:25	
Winter unbleached " 180	Double'	hick.			-
eal, Extra Refined	SIZES.	188.	2d.	Sd.	48h
ard, Pure Winter % 90				-	
Spring ** 59	6 x 8 to 10 x 15	\$12:00	\$11:00 12:50	\$10.00	8 9-2
otton Seed, Crude	18 x 22 to 20 x 30	17:95	15.75	11.75	10.5
White #	15 x 35 to 24 x 90	19-75	17:25	14:50	1
white	26 x 28 to 24 x 36	21.00	18:50	15.75	1
atural Lubricating	26 x 46 to 30 x 50,	28-25	21.25	17:25	1
aphaltum	90 x 52 to 30 x 54	95.75	23.55	19-25	1
enzine W gal. 166	1 90 x 54 to 34 x 56	97-75	25.00	21.75	1
halk	84 x 58 to 95 x 60	29.25	27:75	24.00	
Block rrer, Patent, Am'n ass't cans, 10%c., kegs, 9c English 11c. 9c	Stzes above 40 x 60—110-00 p				w five
" English " 11e.; " 9e	inches.				
rostings	An additional 10 per cent.	rili be	charge	d for at	Glas
lue. White.	more than 40 inches wide. length, and not making more	than	es abov	e az Inc	nes i
ilue, White	be charged in the 84 united in	ches	racket	. mene	a, w11
Haziera' Pointa Zine	Discount 50&15 %.				

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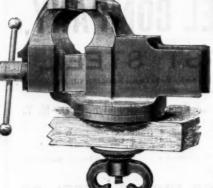
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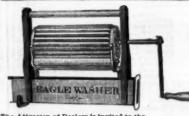
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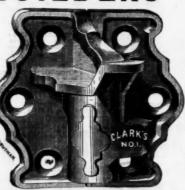
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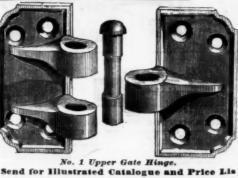
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WILSON MANUFACTURING COMPANY., NEW LONDON, CONN.

MANUFACTURERS OF SOLID BOX VISES, With or without Convex and Concave Wasi

Jacksorows, Braces, Coffee Mills, Turning Hoads and Sorews, Parallel Bench Flees, Sash Pullies, Ho House Pullies, Composition Cocks, Bench Screws, Fise Screws, Gridirons, Drill Stocks and Bows, Box Chisels, Rivets, Sheaves, Block Pins, Composition Roller and Iron Bushings, Riggers' Screws, Caulkers' Tools, Pump Chambers, Belaying

GALVANIZING DONE TO ORDER.

Pins, Marlin Spikes, Malleable Iron Castings, and General

WILSON MFG. COMPANY,

Warehouse 97 Chambers and 81 Reade Streets, N. Y.

PH	ILADELPHIA.
	neekly by Lloyd, Supplee & Walton
, 30 days.	For 60 or 90 days, interest added
	Cast Steel

T. GPCT ALTIBUTE OF A								0
Wilkinson s	6.0							
Eagle			t li ce	nts-c	Ha 50 6	9 304	& 10	9
Apple Parers.	-Dom	estic .			.per d	OZ \$		
Peach Parers			******				10	
Bay State Parer,							15	
Other makes					64		7	M
Lots of 5 to 25 do	zen s	pecial	price					
Axes-								
Mann s (accordin	ig to	weigh	ts) P	er doz	. \$10 5	100	9	54
Red Indian. "	**	44		**	10 5	50 @	10	0
Red Chiertain	4	66		**	11 (	100	10	54
Crown Prince				6.4		10 ca		
Hunt's	**	**	**	**	12 5	50 @	11	54
Augers and Au								
Benjamin Pierce					*** ***	di	8 3	5 9
Douglass' & Ives Connecticut Vall	Bite	seres E	100	*****	di	B 40	651	0 7
COOK & Bite	ey A	nKei. m	100	******	D	18 40	de I	0 5
Jennings' Bits						(11	B 1	U 3
Bares' Nut Auge	PR				OU	18 4U	or 1	U 9
Donglass' & Ive	a' Au	GEBER.			ar	p. 404	Œ H	U 1
Watrous Ship A	ugen				018	18U (	0.2	D 7
Bonney's Pat. He Stearns' Patent	Bollow	Auge m And	rere		d d	18 20 de 96	de 1	0 1
	110110	a serie	9010				-	-
Light or " Comu	non "					19.25	A:1	0
All other Spring	Rala	nees				di	a 9	5 1

Benjamin Pierce
Bainnces,— Light or "Common"
Bells Bevin Bros. Mrg Co. Light Hand   tells
Bering Machines.—Bates Mfg. Co., complete with augers
Belts.—Eastern Carriage   Bolts
Wrought Snutter, Stanleydis 50 @ 50 & 10 \$
Braces.—Barber 8

ABGUIAT				9 (		
Bolta.—Kastern Western Philadelphia	0.5 0.5 4.6	65 66	Eagle	arbdis	0.4210 604210	244
Wrought Shutt	er, Stanle	y		dis 50 @	50æ10	8
Braces.—Barbe Packus Bartholomew s Sponard	America	Bali.	dla	104:10	d1850 15&10 .:d18 50	2 2
ButteCast Fr	6.0	Broad	di	8 35&10 to	404810	2
" Acorn. Lo Mayers & " Acorn Jaj	ose Pin Parliamei o'd	it	di	8 45&10 @ 8 40&10 @ 8 85&10 @ 8 45&10 @	50&10 45&10 40&10 50&10	MMMM
	Hinges a	nd Ba	ck Fin	pad	IB 35&5	8
41 T-0086	Joint			d	ta 40/6:5	96
Parker's Blind Buffalo How. C Clark's Shepard						
Luii & Porter's Garretson's No	. 0 Htages			} du	70d:10	%
Chains.—Germ	SECTION AND PROPERTY.	send o	OII		30 @ 2	54 1

Galvanized Pumpbet 18 @ 18%c
The set Cons ('ba)B.
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
By the cask, 560 lbs., Mc per lb. less Common Chain. Mc per lb. less.
ChiselsSocket Framing
Cooket Firmer
Tang Beatve Framing and Firmer
Casters.—Iron ded         dis 40&10 %           Perceiain Wheel Bed         dis 50&10 %           Iron and Brass Wheel Plate         dis 40&10 %           Porcelain Wheel         dis 50&10 %
Clothes Wringers.—Universaper doz \$72 06 Novetty
Cofice Mills.—Common Box and Side
Cutlery.—American Pocket (best)dis 50 @ 33% & Landers, Frary & Clark, J. Russell & Co. and Lamson & Goodnow Mfg. Co. Manufacturers' net prices
Hart Min Co.

No	0	1	2	3	4	5	6	7 8	1
Files. Nichoison	Hast	aru.						new list	1 92
44	Tab	BT						9-6	1
Butcher's	Mill. Rasti	rd.			· · · · ·	£ gold	84 75	G 4 50	1
Mrs Knoz	-6 I	n. ro	lis				each a	3 50 net 4 00 net 8 00 net	1.
Imperial-	- 6 ID	. rou					86	8 50 net 4 00 net	1
Crown-4 %	in. r	oll				******	61	8 50 net 4 00 net	
Hammers Yerkes & Bammond	Plun	nb s.		••••	****		elb	15 @ 20 % 15 @ 20 %	1

Shingling and Half. \ No1	7.50 8.6	0 8:50
Shingling and Half. \ \begin{array}{l} \pi \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	800	
Hinges. Strap and T	dis 60 @	60A5 s
Horse Nails. Nos. 6	7 8	9 10
G1-b-	26 25	28 22 24 28
Brundage 26 Nos. 5 6	7 8	9 10
Putnam	26 25 h lots	84 28 .dis 5 \$
Knoha		

eral and Porcelain 3545 %	-
Door Locks, Rim and Mortise dis 85 @ 3745 g.	0
American Padlocksdis 25 g	-
© doz\$10-50 10-50 12-00 12-00 15-00 15-00)	B
No	E)
Trunk Locks	
Lanterns.—Square Candle and Oil	C
** Kerosene. dis 10 % Tubular Lanterns. dis 10 %	
and short Cutter	_

Mattacks.—Long and Short Cutter	1
Holasses Gates.  Enterprise Mfg. Co. a Measuring Faucets	
Ment Cutters Dixon's.   dis 25 g   Woodruff.   dis 25 g   Stowe.   dis 25 g   Hale's   dis 25 g   Stuffers.   dis 25 g	
Planes,-Auburn Tooi Co., "Bench	1

Second Quality	
Plumbs and Levels. Adjustable	
Plane trons.—American	
Picks.—Philadelphia net	
Rulesdis 60&:10 \$	П
Rakes.—Cast Steel Garden	1
Steelyards American Pattern	١,

Zules		******	*******	dls 60	& 10 g
Malleable Garden Wood Head Iron To	arden.		di	5 40 @ 4	04:5
Wood Hand Hon I	loan Pa	ttern.	********		in du y
# dox\$5.50	100	9-00 150	10-00 200	25	12-0
English Pattern	8-67 100	10-67 150	12-67 200	14-67 250	16° d00
Hart's Pattern\$14'50 No 50	17°73 190	21°00 150	26.50	81°00 450	is 50 5 36 5 300
Scythes.—Golden C and Sharpened Clipper No. 10, Broa				e. Boxe	141 . \$9°5
Sharpened				. F doz	. #9-0
Cupper mor of car.				99 day	# <b>@</b> QH

Cast Steel Scythes...

aws,-	-Disston's Cross	Cut, No.	1	per fl., 50
Disato	n's Cross Cut No	. 2		per ft., 50
Dissto	n's Cross Cut. P	atent		per ft., 50
W. Mc	Niece s H'd, Cro	es-Cut &	Circ'r, ne	w llst.dis 15
Boynte	on's Lightning, t	new list		dis 50
Boynto	on Champton			dis 45
Boynte	on One-Man Cro	es Cut Sa	w8	dis 40&10
Boynto	on Billet Webs (	no Fram	e)	
hove	is and Spader			
Rowin	nd's Plain Back.			dia 47%
Ex.	Back Strap			
Ext	tra discount on			
Oliver	Ames & Sons			rive Of

ad Irons.—Richmond (poilshed face)pe Richmond (poilshed lace) by the cask	r lb.	3%0
	22 6	0
toneArkansas Oll, No. 1	de III	P.
Turkey Oll. No. 1	44	
Wasnita Extra net		35c
" No. 1net	0.0	80c
4 2	0.0	25c
Indostan 8 inch	16	Se
terese.		
United States and others in Combination	dia 5	3 to d
Keystone, not in Combinationdis	CALLS IN	S . S . C
poons.	0475	@ 0 7e
Plateddis 40	(4) At	MS:5 \$
Britannia, Boardmans (new list)di	8 5UN	& 10 B
" Parkers (old list)dis 50	a 50V	& 10 T
German Silver	riti	s (h) s
Lightnew lie	et /110	25 4
Lalance & Grostean Iron	di	N TAR I
England Course there	. un	8 :0 x
prings, -Gray's Doord	18 604	SE 10 9
Torry's Door	118 6	VE 1113
tocks and Dies	118 10	16:5 9
stove PolishGem	coss.	\$5.00
Onyx	66	85-N
Pry Squares Winterbottom	10 0	0 15 4
Stanley Pule and Level Co	1 at	4.10

tove PolishGem # gross, \$5:00
Onvx «s-o
ry Squares Winterbottom dis 10 @ 15 9
Stanley Rule and Level Codis 45&10
Willie Theall No. 9
Willis Thrall, No. 2
Disston's No. 2dis 40 s
ncks, dec. Half Weight Tacks dis 75 @ 75&10
acks, &c.—Half Weight Tacksdis 75 @ 75&10 by the casedis 72 % & 7 %
Trube, Clout and Finishing Nails net to 10
by the case dia 714
raps. Genuine Oneida Newhouse list dis 20&25
Im. Oneida-Newhouse list (1st qual.) dis 40 @ 40&5
ises.—Solid Box, currency R m 13%
Vennahon Con Commen
Vrenches.—Coes Genuinedis 40&5 @ 47&10
Coes Imitation Wrought Bardis 50&50 \$ 10
Malleable Bardis 60&10
(Kellogg) Malleable Ray die 68 & 10
Tails Pattern (Wrought Har) die 20 c. 202-10
Philadelphia Tooi Co.'s Pat. Duplexdis 25
Improved Baxterdis 25

I	Reported by Measrs. Sidney Shepard & Co.
1	Sept. 11, 1876.
Į	Augers—Snell Mfg. Codis 25
١	Axes—Francis
ı	Phonty
1	Phonixdis 40
ı	Bells, Cow— haw a Genuine. dis 40 Braces—Bit, Spofford's Fatent. dis 50 Brade, Cut.
ı	Brads, Cutdls 50&10
ł	Brass-Sheets
١	Brass—Sheets
ı	Bolts-Stove.
١	Bolts—Stove. 1 at the 35 % 4 mos.; 33 % 5 % 30 dt 40 Brick—Bath (box of 2 doz) Best English. \$1 Can Ongoons, Spreament #1
ı	Can Openers—Sprague's
Į	
ı	
i	
	Corner Socket Chisels
	Slick's Carpenters'
	Castings-Malleable
	Cocks-Globe and Bibb dis 40
	Cutters-Meat, "Hales"
	Egg Beaters-" Dover" per doz \$4
	Castings-1/malicable   dis 70
	Adjustabledis 20
	Columbusdis 2
	Files—Maischoss Bros
	Fluters—Geneva Hand. # doz, \$15 Freezers, Ice Cream—"Champion" dis \$30 Hammers—Henry W. Kip's dis 10 Hinges, Gate—Shenryd & dis 10 dis 10
	Harmone Goner W. F. tole
	Hinges Gara Shapardia
	Hinges Window Blind
	Shenard a and Standard
	Hods. Coai—Plain, Black and Galvan'dnew list dis 15
	Funnel, Black and Galvanied new list dis !! Fancy and Helmet dis !! Sad from
	Fancy and Helmer dis 1:
ı	Sad Irons. dis 1
ı	Kettles—Brsss
	Copper " Hand Made"
	Second   S
	Knives, Orawing-Oval No. 1
	Razor Bladedis 7
	Razor Blade dis 7 Lanterns, Tubular—with guard dis 60&1 Without guard
ı	Without guard
	Machines Boring, Snell's

Į	Cad France dis 15	ľ
ı	Sad Irons	6
ı	Kettles—Brass. 3. Copper. "Hand Made" 5. Enamelest 5.	ã
1	Copper, "Hand Made	ũ
١	Enamereddfa 50	ï
1	Enameled. dis % Knives. Orawing—Oval No. 1. dis % Rayor Blade dis 70	ì
١	Razor Blade	í
1	Lanterns, Tubular—with guarddis 60&10	•
١	Without guard	
1	Machines Apple Paring 750 % d	
1	Manufacture Dollars, Chicago Chicago	r
1	Milis, Coffee—Box and Side, common	ì
Į	Box Union and Eagle.	ŝ
١	Cut Nails, "Harrisburg," lod	
J	Milis, Coffee—Box and Side, common.   dis 2	
J	30 27 25 24 w	ü
4	Pointed & Polishedadd ic *	4
ı	Paint White Lead, U. S. Gov't	J
ı	Paint—White Lead, U. S. Gov't	9
ı		
ı	Frying	3
ı		ŗ.
ł	Screws-"American Screw Co"-	J
ı	Flat Head Iron	
	Flat Head, Brass	6
	Steves—Wood, Hoop iron	ŕ
F	Sifters—Ash. \$9.00 @ \$12 Skutes and Straps—White's	4
	Skutes and Straps-White's	*1
	S. S. & Co., Kitchen	0
	Britanniadis 4	19
	G. S. Hall, Elton & Co	5
	Fairbanksdis 2	5
	Protes Polish—Gem	5
١	Stove Polish—Gem	۲
	Palace 9 gross, \$8.75; bulk, per p	10
1	I Himco Eross, \$8 15; Bulk, per m	0.4

1	Thermometers—Tin Case dis 50%
1	Tools—Tinmens
	Viene Balage Coat
	Vases—Palace Ccai
	V1828-
	Parallel, Buffatodia 3
	Ware-French, Tinned and Irondis 2041
	Ware-Ficher Issanned
1	Stamped and Japanneddis 304
	Wire-Hrass and Copper
	Wire—Bessemer Steeldis 1
	Wife-Besseller Property Co
	Wringers-Novelty
	1 10v14 If: Charcost #N'3U   14v2HI: torne
	123.12.
	123/x17,
	Pig Tin-Straits 22c@
	F18 711 St. 60 (6)
	Bar Tin
	Solder-No. I, Grook v
	No. 1 Star

Sheets. abbit Metal. ron Wire—Bright and Annealed. 

### Gen. Russia, No. 1 stained DETROIT.

					Ser												
Fin P! IC, 10:	ate	-Be	at G	ra	des												
10 10	r14	19×19	14	w20	-					0						1	<b>6</b> 8-9
IX. 10	m1.4	Asserts.	3 17	m-th-					0.0		000			000			10.5
IXX.																	
IXXX																	
IXXX	X.	$14 \times 20$															18:2
DC. 13	34X	7															7.7
DX. 1	256X	17															10.2
DXX		x17.															
DYY		14x1															
DAY		1216															
10, 10	erne	14x	22			**						10.55					4.0
IX.	0.0	14x2															
IC,	**	20x															
IX.	65	20 x	28														21.5
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Large	Pie	8															.22
Small																	
Bar T	(n	Beses					***	***							• •	* * *	99
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Plani	shed	. 14x	18														. 50
46		Bol	ler	Riz	PR.	-											394
Botto	me																
Sheet			***	***				***					**				
No. 18	Lie	H. C.	-														
No. 18	, AL	n. Co	CUE	101		0.0			0.00		0.00	0.00	0.0	0.00	0.0	0 0	\$9.0
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No. 2	1. W	. D.	Wo	bd a	ft: (	0.	. 81	mo	ot	h							4.7
Russi	a Ge	nuin	e P	eri	ect						-						14

PITTSBURGH.
The following are the Card rates, f. o. b. in Pittsburgh of Lewis, Oliver & Philips, H. B. Newhall, it Warren St. New York, Agent.
Iron, standard list assorted sizes, for large orders, specifications to include Bands, small Rounds and Ovals, 25c. rate, 2 % off net.
Merchant Bar Iron, as per terms named above.
Flat Rail (11/4x1/4), punched and coun'sunk 4c W B net
Iron Wedges4c # m net
Iron Crow Bars (in ordering please state
fron Crow Bars (in ordering please state whether "Wedge" or "Pinch" point)446 % 5 net
Beetle Rings
Fence Pickets-
% round, bent to shape, 25c @ ft. of fence. less 15 % off.
Discount off Standard List.
Carriage and Tire Bolts, 75 % off net.
Stove Bolts
Elevator Bolts
Machine and Square Head Rolls new list 50 g off not

I	Machine and Square Head Bolts new list 50% off net	١.
1	Coach and Lag Screws " 50 % off net	li
1	Boh Ends " 50 % off net	ľ
ł	Pat. Hot Pressed Sq. and Hex. Nuts. " 7c W th off net	١.
1	Washers, all made from new band fron " 7c P to off net	
Į	Nuts and Washers in 25 lb, boxes, 5c & h ex. Nuts and	
1	Washers in lots less than one keg each size, 4c W th ex.	L
1	Nuts and Washers in 5 lb. boxes, ic. & m ex. net prices.	
J	Chandand Care for Discovers, 16. W is CA. Het Prices,	ı
J	Standard Caps, for Plows	1
1	Iron Harrow Teeth, in lots of 3 tons or more, packed in	1
1	200 lb. boxes, 1 in. diam. 3c # fb net; 1/4. 1/4 in. diam.	Ι.
1	3c ₽ to net; % in. diam. 3%c ≥ to net.	1
1	Pat. Headed Harrow Teeth, packed in boxes Me & to ex.	1.
	Skein Bolts, in bulk, in jots of I keg or more, % in, diam.	15
	5c # m net; 9-16 in. diam. 6c # m net; % in. diam.	1
	7c & m net. 1c & m atra when less than I keg of	١.
	each size is ordered.	1
	Screw Hook and Eye Hinges, % to 1 in. diam., 8c # 70	1
	net; % in. diam , 9c & m net; % in. diam., lic & m net.	1
	Strap & T Hinges	4
	Screen Hitching Pings light with 1/ ping No. 1 2405 35	-1

1	
ł	Screw Hitching Rings, light, with 1/2 ring, No. 1, \$45
	100 net; heavy, with 5-16 ring, No. 2, 84:75 @ 100 net
	Bridge and Roof Bolts-
	1 to 2 in. diam. over 8 ft. long P # 3%c
	to 2 in. diam. from 4 to 8 ft. long 'Size
	1 to 2 in. diam. from 1% to 4 ft. long " 4%c
	1 to 2 in. diam. from 1% to 4 ft. long
	%, % and % in. diam. from 1% to 4 ft, long " 4%c
	Bridge bolts w th upset ends &c. W to e
	Wrought iron plates, punched
	Cast Iron Washers W 76 3%c
	Duck Nest Tuyere Irons\$13 50 \$\pi\$ doz
	WAGON HARDWARR Standard Liet

	Duck Nest Tuyere Irons
	WAGON HARDWARRStandard List.
١	Single Tree Iron, Wt. Hook, Malleable Ferrule 3 190
Į	Single and Double Tree Iron, Wrought Centre
	Clip, % in. Welded, with 16 in. Ring 150 Neck Yoke End Ferrule, Malleable, with Wt.
Ì	I on Ring 30 m 190
ı	Neck Yoke Attachment, with plates complete. P & 15c 25 per cent. off Single and Double Tree Irons, Neck
	Yoke End Ferrules and Neck Yoke Attachments, Net orders of 50 set, and 10 per cent, additional of fo
	quantity orders, same as other Wagon Hardware, as noted below.
	Plaw Single Tree, Ironed complete, Irons all

	noted below.	-
	Plew Single Tree, Ironed complete, Irons all	
3	Wroughteach	55
5	Wagon Single Tree, Ironed complete, Irons all	
Į.	Wrought, except Malleable Ferruleeach,	65
3	Wagon Single Tree, Iron complete. Irons all Wrought; Improved End Pieces riveted on:	
5	one side acts as a wear fron for wheel to rub	
e e	against each	65
t	Neck Yoke, Ironed complete, Iron all Weought	
B	except End Ferrules, with Wt. Iron Rings each.	75
É.	Wagon Box Strap Bolts-	
8	10 in. long by 7-16 at Screw End, P set of 8 bolts.	43

10 ID	. long by	7-16 81	PCL6.AL	End, P set o	181	olts	L .
1.6	61	28	**	41	8		
10	91	8-10	41		8	86	
13		9-16		41	8	6.0	
14	44	9-16	0.0	0.0	8	De.	
10	60	86	6.6	64	8	0.6	
12	60	86	0.0	6.6		0.0	
14	86	44	6	6.6		0.6	0 0
16	66	86	86	60		44	
18	44	20	44	65	0	66	
20	64	6	61	4.6	0	66	0
En 30 m	of for one	all add	ittamel (	nch over 14		0.00	ie

П	made.					
	In ordering Bo Screw End.					
П	Wagon Box Roc	ls, narroy	v track.	each		
1	¥1 61	wide t	rack, eac	ch		
	Single Tree Iron	ns. W set	of fone	teces		
П	Wrought Iron F	lolstor Pl	otes 98	In wie	do 30 -	
ы	Wionghe Hon E	FF T	arce, ag	HILL WILL	Ic, to	Jet
Н	63	9.5	917	44	0.0	
2	44	41	9.4	44	60	
3	Wasan Basha W		314	**	00	
Ě	Wagon Brake F	latenets,	each	******	*****	
			finished	with g	uard,	each4
	Wrought Hamu	aer Strap	a, heavy	pattern	a. eacl	1
3	** **	**	light	64		h 1
3	" Rub I	rons, eacl	3			

	RUU IIOHE	. emcn				- 9	
							i he
Double ar	d Single T	ene Clin	o German				
Donnie at	in omitte r	ree oup	e, agur	e I, eaci	1	5	ı.
**	**	***	31	2, eacl	2	- 6	
6.6	66	64	0.6	9 cool		44	
Dala Cana	anak			or cuci			Ł.
Loie Cabs	, eacn						28
Single Tr	ee Hooks.	NOS. 1 at	rd 2			A	14
Steam Ro	ta Dode	Zingle !	Pune fr	1)		Wat	17
Strap Do	un, Ituun,	Single	rice Ti	one, B	DISTEL	L.181	Jе
Brake B	atchets, H	ammer 5	traps, I	tub Iroi	as. Sta	w Ch	aí
Hooks,	Clips. Sin	gle Tree	Hook	s, and	Pole	Cana	. 1
TC 8301	KI BEES					die 5	25,
For each	order amo	unting t	o #200	net or	OTAR	for	e b
followin	or goods :	Wagon	Handwe	me Cam	of one	- 4 7	74.
TO-14- F	is souds.	AA THE OIL I	GULTANS	ire, Cari	uske s	ma 1	B.
Borts, h	ivets, ske	in Bolts,	Nuta.	Washer	rs. Be	vel F	30
and Tor	gue Can I	ron. we	will all	on on a	Wire d	Mann	22.1
of 10 po	n cont on	all W. area	n Wand	A AL WITE C	MALL OF C	TIBCO	41
or to be	cent on t	WIT AN WRIGH	II RIBEC	ware, s	ubjeci	10	<b>(8)</b>
count, c	comprised	in the or	der.				
					anch		
	Stay Chair Double an  " Pole Caps Single Tr Strap Bol Brake R Hooks, lots of 5 For each followir Bo'ts, R and Tor of 10 per count, co	otay chain Hooks, obtay chain Hooks, obtay and Single To Hooks, Single Tree Hooks, Strap Bolts, Rods, Brake Hatchets, Hooks, Clips. Sin lots of 50 sets  For each order amo following goods: Bo'ts, Rivets, Ske and Tongue Cap I of 10 per cent on count, comprised	other chain Hooks, each. Double and Single Tree Clip  " " " " " " " " " " " " " " " " " "	Stay Chain Hooks, each.  Double and Single Tree Clips, figure  ""  ""  Pole Caps, each. Single Tree Hooks, Nos. 1 and 2.  Strap Boits, Rods, Single Tree In  Brake Ratchets, Hammer Straps, Hooks, Clips. Single Tree Hook  lots of 50 seets.  For each order amounting to 250  following goods: Wagon Hardwa  Bo'ts, Rivets, Skein Bolts, Nuts,  and Tongue Cap Iron, we will all  of 10 per cent on all Wagen Hard  count, comprised in the order.	Stay Chain Hooks, each.  Double and Single Tree. Clips, figure 1, each  """ 2, each  Single Tree Hooks, Nos. 1 and 2.  Strap Bolts, Rods, Single Tree Irons, B  Brake Ratchets, Haumer Straps, Hub Iron  Hooks, Clips, Single Tree Hooks, and  For each order amounting to \$24 met, or  following goods: Wagon Hardware, Car  following goods: Wagon Hardware, Car  following goods: Wagon Hardware, Car  following Goods, Wagon Hardware, Car  following core or on Silve Wagon Hardware, So	stay Chain Hooks, each.  Double and Single Tree Clips, figure i, each.  """ 2, each.  """ 2, each.  """ 3, each.  Pole Caps, each.  Strap Bolts, Rods, Single Tree Irons, Bolster Brake Ratchets, Hammer Straps, Rub Irons, Sts Hooks, Clips, Single Tree Hooks, and Pole lots of 50 sets.  For each order amounting to \$200 net, or over, following goods: Wagon Hardware, Carriage a Bo'ts, Rivets, Skein Holts, Nuts, Washers, Be and Tongue Cap Iron, we will allow an extra  of 10 per cent on all Wagon Hardware, subject count, comprised in the order.	Double and Single Tree Clips, figure 1, each.  """ 2, each. 9  Pole Caps, each. 11  Pole Caps, each. 11  Single Tree Hooks, Nos. 1 and 2.  Strap Botts, Roda, Single Tree Irons, Bolster Plat Brake Ratchets, Hammer Straps, Rub Irons, Stay Ch.  Hooks, Clips, Single Tree Hooks, and Pole Caps  Fols of Brees  F

п	NO. 2 " 3%C I	n-
1	" For Far n and Lumner Wagona.	
1	Shank, 9-16 in flat part 14 in each, 74 c r	14
1	Plow and Wagon Cleviage 20 % Re r	n.
1	California Tire Rivets and Burrs, 5-16 100 r	0.0
1	" " " " " " " " " " " " " " " " " " " "	111
1	Wagon Box Staples, 11/2 to 21/2 in. to clinch . ₩ 1000 \$10.75	n
١	" " Bevel Box Iron, to rivet on. # 1000 7-251	a
1	Neck Yoke Eyes, each45c	n
1	with % rings, each	n
ı	King Bolts, 34, 1, 1%, and 1% in, quam w b 3 kc i	n
	Wagon Rivets, ex. large flat, oval and steeple	
ı	head, 1/4 in. diam., 1 in. and longer " 7160	n
	Wagon Rivets, 3-16 in. diam., 1 in. and longer " 85c 1	n

1	% to 1 inch long	Ph 1cer
ł	& Nails, in 5 % paper boxes	44 10 63
ı	" in 25 h wood "	44 1/40 et
١	Wagon and Hinge Nails, pointed by hand-	
1	14 x3 and longer. 2% & 2% 2 & 2% 1 %	and shor
1	lie W D. ise W D. ise w D.	12c 30 %
1	3-16x3 and longer. 214 & 24 2 & 24 14	and shor
1	120 要 物。 140 服 物。100 和 物。	THE W IN
1	Wagon Rivets and Nails, in less lots than	100 - 20
1	one keg each size	# Kee
1	Double Tree Plates	6 73/0
1	Coupling '	. 4 4%0
ı	Tongue "	. 44 8 tu C
1	Neck Yoke Plates	. " 9140
П	Tongue Can Iron, 14, 2 & 24 in wide same	nelco %

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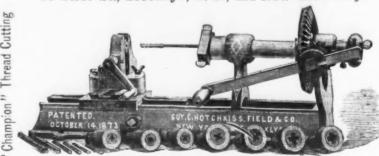


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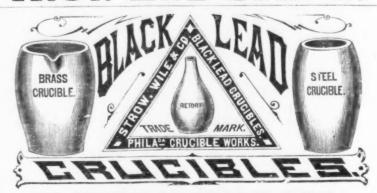
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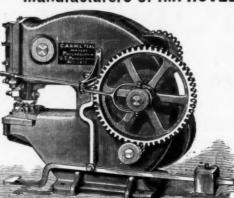
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	[. X. 10x14 Charcoal	a 1	0.2
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	I. C. 10x20 Coke	66 1	1844
	Sheet Zinc,-Cask	6	916
	Sneet	66 1	0 0
	CopperBraziers	60 8	
	Pianished	@ 4	ñ 7
	Sheathing	66.8	
	Bottoms	66.8	
•	Day	G 3	
	Block TinPig.		
-		@ 2	
	Bars	60 2	
	LeadPig	6	
	Bar	0	
	Solder8. & Co	@ 1	8 (
	Market Wire, -Bundles.	66 1	5 (
	Market Wire, -Bundles	dia	40 1
	Leag	dia	35 4
	Less. Sheet lren.—"B," No. 27. Smooth, "S L U," No. 27.		1.25
	Smooth, "8 L U." No. 27.		5°10
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	Calvantrad	den fil	P 261
	Galvanized	CHIR SE	29.7
	Russia		, 134
B	BrassSoft		UK.
	Ноор		.35
	Platers'		.504
	Tube		.50
	Antimony		.19
_	Babitt Metal-No. 1 2 3		4
ÿ	Babitt Metal-No. 1 2 3 45c 25c 30c		10c
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	June i	. 1876.		
Tin Plate.		14v20 IX	X. Ch'B	ont 14.50
10x14, IC, Ch'l. G	a boo			
10x14, 1C, 'H	est. 850		late, "	8 50
		DX.	46	. 1100
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193300 100	. 9 50	IX, 14x1	8 .	
	" 12 00	_		
14x20, IC, Charc		z. Com		
14x20, 1C, 14x20, IC, 14x20, IX, 20x28, IC,	10	G000		8 00
14x20, 10,	0.6	Bent		140.50
90 wtw 34:	0.6			
20x28. IC.		Good		
SOVER TO	44	Heat		17 00
20x28, IX.	8.6	64		22 (1)
20x28, iX, 10x20, IC, Brigh	t Coke for	Gutters.		13 00
Block Tin.				
Large Pigs	240	Bars		26c
Small		Control		
Zincsheet, 500	0 10 1000 10	. Cunks		956c
Loose Sheets Slab Zinc or Sp	n le			10566
('opper,-Botto	CHUCK			% 10 Sc.
Sheathing	188M			ille.
Planished				360
" Bolle	r lengtos			38c
Bolt				
Braziers' She	etu			
30x60, 6 to 7 lbs. 30x60, 8 to 9 ths	4 B 19	c   30×60, 1	0 to 12 ths	*** 學界 340
SolderF.S. &	Co 's mak	e 1 30 x 60.	19 10 100 10	4. 35
				188
No. 1	*********	********		17e
No. 1	*********	********		17e
Roofing Braziers or Spe	Ster Solde	F		15c
No. 1	Ster Solde	F	· · · · · · · · · · · · · · · · · · ·	17e 15e . 20 to 88c 22c
No. 1	Ster Solde	F	***********	17c 15c . 20 to 88c . 22a . 15
No. 1. Rooting. Braziers or Ste Antimony. Babbit Metal No. 2.	Ster Solde	F	***********	17c 15c . 20 to 88c . 22a . 15
No. 1	ter Solde	r	* * * * * * * * * * * * * * * * * * *	20 to 88c 220 15c 220 15
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No. 1 Roofing. Braziers or Ste Antimony. Bnbbit Metal. No. 2. Sheet Iron.—	Ster Solde -F. S. & Common. 3%c 4 c 4 c 4 c 12c	Smooth. Com. 5 c 5 ½c 5 ½c	Smooth Charcoal. 6½c 7 c	Smooth Juniata 84c 99c 418 30 4
No. 1 Roofing. Braziers or Ste Antimony. Bnbbit Metal. No. 2. Sheet Iron.—	Ster Solde -F. S. & Common. 3%c 4 c 4 c 4 c 12c	Smooth. Com. 5 c 5 ½c 5 ½c	Smooth Charcoal. 6½c 7 c	Smooth Juniata 84c 99c 418 30 4
No. 1. Roofing. Brazters or Solution Antimony. Bribbit Metal No. 2. Sheet Iron. 27 & 26. 27 & 26. Galvanized I No. 18 to 30 21 to 24 28 & 26 Russilvanized I ron. Perfect Iron.	common. 3% c 4 c 4 c 12c 13c 14c 14c 14c 14c 14c 14c 14c 14c 14c 14	Smooth. Com. 5 c 5¼c 5%c	Smooth Charcoal.	Smooth Juniata 84c 9 c 95c 15c 15c 15c 15c 15c 15c 15c 15c 15c 1
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No. 1. Roofing. Brazters or Sub Antimony. Bnbbit Metal No. 2. Sheet Iron.—  No. 24. 27 & 26. Galvanized I No. 16 to 30. 21 to 24. Lusain Iron.— Perfect. American Ru	F. S. &	T. Co. s	Smooth Charcoal. 0%: 6% C 7 C	17c   15c   15c   22c   15c   22c   15c   15c
No. 1. Roofing. Brazters or Sub Antimony. Bnbbit Metal No. 2. Sheet Iron.—  No. 24. 27 & 26. Galvanized I No. 16 to 30. 21 to 24. Lusain Iron.— Perfect. American Ru	F. S. &	T. Co. s	Smooth Charcoal. 0%: 6% C 7 C	17c   15c   15c   22c   15c   22c   15c   15c
No. 1. Roofing. Brazters or Solution Antimony. Bnbbit Metal. No. 2. Sheet Iron.—  No. 24. 27 & 26. Galvanized I No. 18 to 29. 21 to 24. 22 & 26. Russia Iron.— Perfect. Aleerican Ru Lend.— Bar	Ster Solde   F. S. &    -F. S. &   	Smooth. Com. 5 c 5 c 5 ke 5 ke 1 No. 27. 28. No. 1 St In She Lead P Lead P	Smooth Charcoal. 6½: 6½: 7 c 7 c alned lets, i.c. hig jee, in ful) jee, in ful)	17e   15e   15e   15e   22c   22c   22c   15c   22c   15c   25c   15c   25c   25c
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Lead	Lead Pipe, in full colls 9 (
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	Butts and Back Flaps revised list, dis 30 Butts reduced, dis 30
Cards	V needer \$0.05 dec00
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Brown's Steel Bars	******		
K. P. & Co. Extra Drili S	iteel		
Cow Ties			
Dividers, -Cook s Nicks	ei Pfated		d
Door Springs,-Mosele	- W-		
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Egg Beaters,-Lightnin	ng, Redh	effer pai	., pinte,
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\$2.50	2.50	2.20	3°25 per
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Deep Flange\$8.50	3.75	4.00	
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all	Axe Pattern
217	Broad0, \$5°75; 1, \$6'50; 2, \$7'56
	5, \$12,75, 6 \$14.75
tes	Hinges Strap and T. Stanley Wor.
w	Plate, Loose and Fast Joint
	Wrought Screw Hook
e.	KnobnYoung's Imp. Silverd Glas
an	Lanternslubular No. 0
8,	Guarded, No. 74, (with kerosene
ng	burners)
-	Anti-Tubular
	Lead,-Sheet, 10c.; Pipe, 916c
	LocksNorwalk Lock Core
E .	Mattecks
C.	K. P. & Co., axe finish, long cutter

i	PinsUniversal Hatand Coat all wood-
и	2 in # gross \$250; 3 in., 3 50; 4 in., 4 50-dis 15
Н	Plumb & Levels, -Stanley dis 60&10
ı	Potato Diggers.
н	Winnington, Cooley & Codis 30
Н	Pulleys,-Axie.
П	Frame Pol. Wheel No. 150, 30c., 14 in.; 16, 38c., 2 i
Н	Common Avie No. 18 S4e 18 In - 36 Ale 9
	Common Axle No. 18, 34c., 1% In.; 26, 40c., 2 i Milled Axle No. 2, 42c., 1% in.; 3, 50c., 2 i
	Nashua Pat. Arie Bronzen Face 1% in., 80c; 2 in., 9
П	
1	Cust Steel Axle
,	Pullev Blocks,-" Best Boston Make"n
1	Pintes WareHogers bros dis 4
	Pocket in nives Conn. Cuttery Co new net li
1	American Shear Conew net l
	Rail karn Door For Noveity and Anti-Fric-
	tion Hangers per foot 7c., dis 40
	Refrigerators-Heinz Patentdis 20
	Waynes - Rinck dis 50
	KivetsBiack
	18 13 14 14 15 16c P D
	Sad Irons.—Bless & Drake
3	Sand Paper dis 15 & ;
2	M. B. & D
2	Baws Hand and Panel-
	Wheeler, Madden & Clemson's, same list as " Dis-
	ton's"dis. 15&1
•	Disston'sdis. 19

Wheeler, Madden & Clemson X Cutsper ft.,
Boynton's genuine Lightning X Cut per ft
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raps. Oneida
Blake's
Vinca P. Co. a none box. Discassific P B

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Apple Parers.—Conqueror	
Hudson's Rotary 7	Į,
Axes Wm. Mann's, Red Warrior doz 49	'n
" Handled '95 car	5
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Beiting, -"Boston Belting Co.'s Rubberdis 40-25	U
Bradford & Sharp's" Oak-Tannen Leatherdi+ 85	4
Boats - Metallic, Sectional, Bong's Patnew list n	4
Bolts.—Arms, Bell & Co.'s Carriage & Tire, dis 70& 10	е
Arms, Bell & Co.'s Machine	
Butta, - Western Butt Co.'s new list -	
Narrow Fast Jointdie 25&10	
Parrow Fast doubt	
Broad Fast Jointdis 3 & 10	
ACCORD *********** * **********************	
Reversible	
* apainted and Silver Tippeddis 45&10	1
" Japanned and Silver Tippeddis 45&10 Loose Joint "Acorn"	ľ
CHUTTHE -JUHAM, NO. 2, 2100; NO. 3, 2130; NO. 4,	
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Power Shellersdis 10	1
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Corn DrillCampbell's Patent each #
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Power Shellersdis 10 %
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12 10. Saws, \$4'01 a Saw
Crow Bars Steel Pointed B 6%0
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Culver's bon Drag Saw
Robinson's Patent Sweepstakes Drap Sawdig 10 4
Fanning Mills Nash & Cutt's dis 20 4
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Sanford No. 1, \$10 00; No. 2, \$8 00 Del
Files. Black Diamond, Mill \$5:00 £ currency
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ForgesKeystone Portable Forge Co.'s dis 121 \$
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Auburn Mfg. Co.'s Hav and Manure Forks dis & g
" Handled Hors dis at a
Garden Seed Drillis and Wheel Hoes.
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" Planet Drin, Nos. 2 and 3 ots 15 3
" Combined Drill and Wheel Hoe As 15 6
Grinding wills Challenge Feed Mills dis 15 6
Sedgebeer's Nonpareli Milis, dis 15 5
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tarden seea Hrills and Wheel Hoes.
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Wheeler's Railwaydis 10 %
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Hose.—Boston Belting Co.'s Rubber Medium Sizes dis30&10 \$
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Sections cis do s
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Na was Curtis & Co die 15 a
Sevices.—Dunn Edge Tool Co. 8
Scythe Stones.—No. 1 Ind a Pend & gr's, \$7.00 Extra Indian Pend
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Premium
Shovels and SpadesH. M. Myers & Co de sa
Grain Scoops-Patent Cor'd Straps H. M. M. A Ca
dis 30 , and 75c per doz extra
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Sledges, -Smith's Stone or Coar Sledges-
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Spaths and Cradies. Seymour Mig. Co.'s dis to
Sorghum Machinery Bell Cane Mills - die so
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IX, 14x20, 12	20   10.	10x20.		18-50
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Usual difference for od	d sizes.			
Block Tin.				
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Solder.				
Extra in Bars				. 176
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Sheet Copper.				
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10 and 12 6, 7, 8 and	lbs., '	******		540
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linned, 14x40, 14 and 10 0	Merce			559
Plantshed, 14x48, 14 and 1	6 OZ			394c
" Boller Sizes, 1	4 and b	6 02		410
Copper Bottoms				-1.5
No. 16 to 20	.4 c	4% C	654C	7%0
No. 22 to 34	.4 C	4%C	6544	7 % C
No. 25 & 26	.456 C	5 6	636C	8 C
No. 16 to 20. No. 22 to 34. No. 25 & 26. No. 27.	.4%C	554 C	6%0	8340
Iron Rivets		.000		dis 25 \$



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It is a common method to advertise Governors without cost, unless satisfactory to the customer, and then charge High Prices for doing what any good Governor will do. Various Governors in ferior to he "Judson' are sold in this way, operating well enough for three months, to insure collection of the pay, but becoming useless after a year's wear—their construction lacking durability. The Judson Governor is guaranteed to be not only the best Regulator of 5-team Engines, but also the most durable Governor made. Parties in buying other Governors should stipulate that their durability be guaranteed, and should also take care that they do not, for much inferior Governors, pay higher prices than those shown in the accompanying list. We guarantee the Judson Governor will do all any

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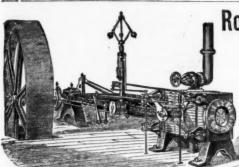
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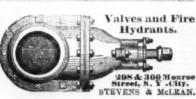


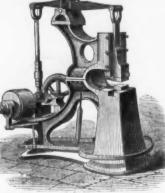
For reducing to fragments all kinds of hard and brittle substances, such a STONE for reaking the most perfect McADAM ROADS, and for making the best CONCRETE. It breaks stone at trifling cost for BALLASTING RAILROADS It is extensively in use in MINING operations, for crushing

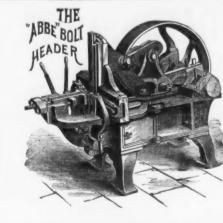
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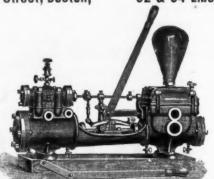
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Boiler Feed Pump, No. 3 and 4. Showing New Patent Vaive Motion, and Hand Power LEVER Attached and Detached. Cut above represents regular

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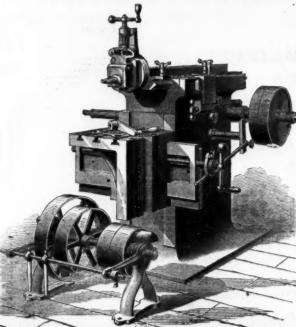
ant every part of this Machine to stand the shock of the wheel running at 125 revolutions.

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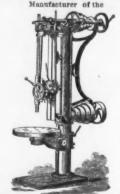


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Any length of stroke from \$14 to 24 inch in length, e machine is running with perfect uniformity of ed of cutting tool. Automatic cross feed of 19 inch 16 inch, from top of table to bottom of slide when a is down. Send for Circular and Price List. table is and 16

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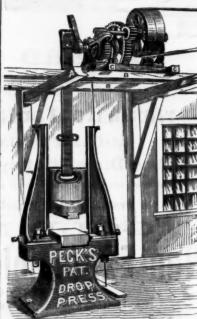


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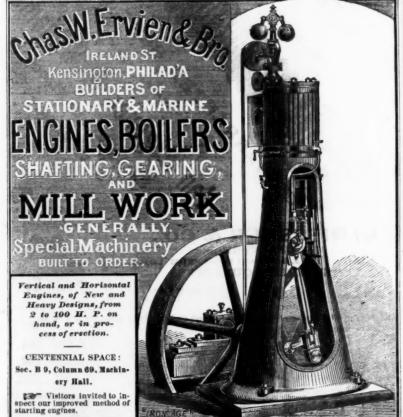
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REPORT OF JUDGES

In Department V, Group 3, at the 44th Exhibition of the

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No. 318, Drawing, Drop & Punching Presses.

THE STILES & PARKER PRESS CO., Of Middletown, Conn.

The machinery exhibited by these makers is of a character that calls for special commendation. In addition to their well known punching presses, to which a new feature has been added in a press adjustable to an inclination for discharging work left above the die, there are exhibited by them a com

bined punch and shears, a drawing or blanking press, and a drop.

In all these there is shown the highest mirchanical culture, applied to meet every practical requirement, to avoid every practical ifficulty, and to enlarge the range of application of the machines, by devices which are at once simple, elegant, and effective.

Your committee would unbesitatingly recommend for this exhibition the "Medal of Progress," but find such award debarred by the rule of the Institute, forbidding such award unless a Silver Medal has been previously awarded. We, therefore, respectfully recommend the award of a Silver Medal.

A true copy from the Report on file.

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Very respectfully.

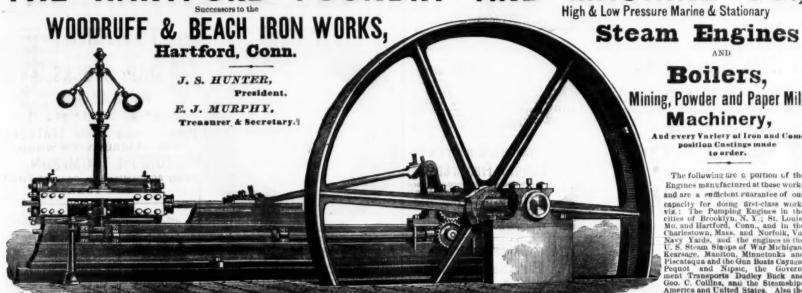
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For Connecting Shafting and Gearing,

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BRASS CASTINGS, INGOT BRASS, BRASS TURNINGS AND OLD METALS WANTED.

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SWEDISH STOCK, OIL-TEMPERED and WARRANTED.

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CAST SPRING AND PLOW STEEL. CAST SHOVEL, HOE AND MACHINERY STEEL

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RESSRIER MACHINERY AND CULTIVATOR STEEL.

RE-ROLLED NORWAY SHAPES. NORWAY NAIL RODS ROLLED AND SLIT FROM SUPERIOR BRANDS.



We call the attention of the trade to our New Stove or Pire Shovel. It is far thing in the market, for the following reasons:

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It is made from one piece of Metal, both blade and handle; therefore is as cheap as the cheapest.

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The handle being half round at the junction of the blade makes it the Strongest Shovel ever manufactured, (where all other Shovels fail.)

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P. S.—We have noticed a circular issued by the East River Sheet Metal Myg. Co., informing the Trade that there are parties manufacturing a Fire Shovel made in one piece and corrugated at or near the junction of bandle and blade," upon which they hold a patent. We do not know to whom they refer, but if to us we wish to say that we manufacture our Shovel under Letters Patent of the U. S. granted to us and we guarantee all parties purchasing goods from us against all loss or damage, by infringements of every kind and nature.

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A Substitute for Steel and Wrought Forgings.

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